

The Macrosocial Impact of Communication Systems: Access, Bias, Control

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paper presented at the annual conference of the
International Communication Association,
Washington, DC, May 1993.

ABSTRACT

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Various theories and research perspectives contain suggestions that the structure of communication systems can exert an influence on related social systems. Common themes in these suggest a metatheory of macrosocial influence built upon the influence of three related aspects of structure: access, bias, and control. These aspects and the nature of their influence are examined individually, drawing upon existing theories and perspectives to illustrate the nature of their influence.

The Macrosocial Impact of Communication Systems: Access, Bias, Control

The (in)famous first axiom of pragmatics states that "one cannot not communicate," (Watzlawick, Beavin & Jackson, 1967, p. 50; emphasis in original). This axiom aptly illustrates both the strength and the weakness of communication as a discipline: that the notion of communication, like the concept of information which it subsumes, is a rather broad concept. This breadth not only permits, but perhaps even requires, communication scholars to approach their studies from a wide variety of perspectives. It argues for the development of not only theories, but of metatheoretical approaches that integrate seemingly disparate theories, perspectives, and paradigms.

One of the goals of the communication discipline should be to take fullest advantage of the breadth of the concept "communication" and cross the artificial boundaries of academia and a reductionist science in our search for a broader understanding of communication and what it means. To a large degree we already do this in our training and research, drawing from psychology, sociology, political science, and economics our major theories and influences, drawing our tools from the realm of the hard sciences as well as the interpretive. This has been enhanced in recent years by what appears to be a developing trend in research and theory-building towards the crossing of old boundaries and the integration of perspectives and approaches (cf. Hawkins, Wiemann & Pingree, 1988).

There are several reasons to applaud and encourage such integrative trends in the field of communication, and to attempt to develop what could be called metatheories of communication: integrations and syntheses of various applicable theories within the various subdisciplines, pointing the way to new directions for research and theory-building. First, there is the traditional definition of communication, which itself crosses the boundaries of older disciplines. Communication has long prided itself on its ability to synthesize the approaches and theories of other disciplines in the study of communication phenomena. It should also be able to synthesize and integrate its own theories to a greater extent than it now appears to do. Second, the continuing development of new communication systems have demonstrated that many of the old boundaries and distinctions among the various media of communication, and between various levels of communication, which had formed the basis for subdisciplines, were arti-

facts of specific technologies and perspectives, and are not inherent in the basic concept of communication. The convergence of media and modes of communication encourages, if not requires, a similar convergence within academic subdisciplines, once more driving the field towards an integration and/or synthesis of theories.

In my own attempt to make some sense out of the world, to understand the role played by communication and communication systems in the development and evolution of human societies and cultures, I have noticed a good many of common threads among various theories and approaches of communication. While only a few theories have dealt explicitly with the interaction of communication and social systems, a great many more have touched on aspects of that relationship, or have raised and considered related issues. There seem to be enough of these threads in the literature, in fact, to start to weave what could be called, in contemporary jargon, a metatheory of the macrosocial effects of communication systems and structures. In other words, it should be possible to build a perspective, a common theoretical approach, for investigating the broad, general, influence of communication systems and structures on society.

What I propose in this paper, is to wander across many of the artificial boundaries of our field, as well as other disciplines, and draw from and compare diverse theoretical traditions in the search for a single approach to the understanding of how communication systems can influence the development of societies and other social systems. Along the way, I will touch upon many of these threads and consider how they contribute to the development of this basic approach. It is hoped that this theoretical journey will lead towards the development of a metatheory of communication systems and society.

Theories and Metatheories

This journey should begin by considering just what is meant by the term "metatheory." David Wagner (1984) defined metatheory as "discussion about theory- about what concepts should be included, about how those concepts should be linked, and about how theory should be studied" (p. 26). Their purpose is not as much to predict but to define an approach to the development of theory and predictions; their primary value is thus heuristic. Metatheories, in Wagner's terms, provide an "orienting strategy," a way of examining and explaining the world which directs theoretical development. As such, metatheories are distinct from more formal "unit theories;" they may not lead to specific predictions-- in fact, metatheories may not even be fully testable.

In attempting to follow Wagner's general guidelines in the consideration and development of a metatheory of communication systems and society, this paper will focus only partially on the development of a formal theory and the derivation of specific predictions about what could be called the macrosocial effects of communication. Rather, it will be primarily concerned with the identification of the key concepts and the patterns of relationships among existing theories and approaches, and their synthesis. Emphasis will be placed on considering the fundamental nature of the relationship between the structures of communication systems and cultures, on the identification of those factors which seem to be more influential, and on the basic manner in which those influences are said to occur. The goal is not to predict specific effects, but to integrate approaches and to direct our attention to certain patterns, to argue that we need to be looking in certain places for certain kinds of things.

These orienting strategies play a vital role in providing the theorist with the conceptual schemes and definitions which can then be used to build more precise theories and predictions (Wagner, 1984). Through this start at developing a metatheoretical basis for considering broad social effects and influences, this paper hopes to lay a foundation for future development of theories describing and explaining distinct social phenomena dealing with the coevolution of communication systems and society, and the derivation of specific hypotheses for testing.

The Influence of Structure

Communication systems influence other social systems and individuals in a variety of ways. One way of differentiating these ways is through the scale of the effects. Microsocial effects occur on a small scale, with individuals or individual organizations. Macrosocial effects, in contrast, occur on a much broader scale; in fact, they are generally considered to be systemic, or cultural. In trying to develop a metatheory of macrosocial effects, I will focus on one particular type, or source, of influence: the relationship between the structure of major communication systems and the basic structure of the social systems which utilize them, through which communication systems can exert a broad, macro-level, influence within a culture or society.

I do not mean to suggest that this influence is either uniform or deterministic; in a complex, differentiated world, to do so is to fall into a trap which only serves to restrict acceptance of potentially interesting and useful ideas and theories. Rather, what I want to suggest is that the structure of communication systems is one of many factors influencing both how those communication systems function within so-

cial organizations and how those communication systems interact with other social organizations as well as society at large. Systems theories and approaches note the interrelationships of social systems, including communication systems (cf. Buckley, 1968; Laszlo, 1972; von Bertalanffy, 1967). General systems approaches also remind us that many other influences are at work in any large scale system; thus, the structure of a communication system is only one among many macrosocial influences.

Continuing our discussion of terminology, the concept of the structure of communication systems refers to more than the physical technology of the system. Structure also refers to the manner in which the communication system is organized, and the pattern of its relationships with other systems and structures. To borrow Kenneth Boulding's (1981) terminology, individual systems have two related aspects of structure: the biogenetic (physical) structure, and the noogenetic (social) structure. This distinction is mirrored in Klabbers' (1986) argument that social systems are composed of interlocked strata, which he identifies as technology, structure, and culture.

Boulding uses the term "biogenetics" to refer to the basic physical structure of social systems, something akin to the role played by genes in biological systems. The biogenetics of communication systems thus refer to the basic technological system, the physical medium. While not precisely determining the specific final form of the system, biogenetic structure can be said to delimit the basic physical nature and/or structure of communication system within societies. Aspects of technological form, such as the physical methods of transmission employed by a system, can influence the typical uses and functions of a particular medium or communication system. While not preventing other uses, efficiencies might encourage certain tendencies and thereby influence the role played by the communication system in a particular culture or society.

While biogenetics are an important aspect of that system, Boulding argues that it is the other aspect of structure, noogenetics, which is generally of greater influence in developing the relationship of the organization with the society of which it is a part. Noogenetics is defined as the process of individual learning and development within a social system, the manner in which it makes use of the biogenetic structure it incorporates. Thus, it is concerned with how the specific organization or system develops, with how various social, economic, and political factors have influenced the development of the organization's basic structure. And by extension, noogenetics addresses how that structure is organized, how it "fits" into the larger social sys-

tem, also influences the role(s) of that system within the larger social system. In this, it refers to what Klabbers (1986) called the structure and culture of a system, the way the system is organized and the rules (norms, values, etc.) which guide its behavior.

In other words, while the physical structure of a channel may exert some influence, Boulding and Klabbers argue that it is primarily how the system develops, operates, and is used within a particular social system which will determine each medium's final form and structure. Thus, the noogenetic structure, as part of the overall social system, does exert an undeniable influence on the development of organizations utilizing, or interacting with, aspects of that structure, although the influence is by no means absolutely deterministic of macrosocial effects.

As an example of how noogenetic structure works, consider the socio-political contexts surrounding the development of broadcast media in the United States. The fact that American broadcast media developed in the U.S. within the existing socio-political and economic environment strongly influenced the development of those media as commercially oriented entertainment media. Various decisions and factors led to the development of specific structural features, such as the need to attract large audiences (primarily through entertainment programming), and the domination of the three major networks. And these structural aspects have long been held to have had considerable macrosocial influence both within and upon American society (as well as upon other societies and cultures). The fact that other broadcasting systems do not operate as such, and may have differing patterns of influence, reflects the fact that such aspects are part of the noogenetic, social, structure of broadcasting systems, rather than the biogenetic, or physical technology.

The relationship inferred is not a simple one, or unidirectional. Both aspects influence the evolution of the system, and the manner in which it interacts with others. Technology and social structure are not, as Slack (1985) reminds us, totally independent; each can, and does, influence the development of the other. Thus the dichotomy should not be treated as absolute, but as two related arenas in which the various aspects of the structure of communication systems may influence those individuals, organizations, and societies which utilize those media. In developing a metatheory of macrosocial influence, we need to consider both noogenetic and biogenetic structures, and how each, separately or together, can influence the continuing evolution of social systems.

Synthesizing a metatheory

There are a plethora of theories and approaches which have argued that, in one respect or another, aspects of the structure of communication systems can, and do, influence the continuing evolution of societies. In looking at these theories, and in considering the structure of communication systems, there would seem to be three basic aspects of biogenetic and noogenetic structure which are likely to have broad social influences or effects, three ways in which the structure of communication systems can influence social evolution. These three interrelated aspects of communication and information system structures can be called *access*, *bias*, and *control*.

Communication systems exert influence by being used. Their use carries certain implications for influence: first, that the users are not doing something else; second, that those using the system are gaining some information from the system, or using that system to spread information; and finally, that users are interacting with other individuals and social systems through that use. *Access* refers to the notion that use of a communication systems may not be uniform within the society, and thus that any impact of the medium might be differential, and influenced by the degree of access to the system, as either a sender or receiver of messages. *Bias* refers to the notion that systems might favor certain types of information, or types of uses, which then can favor certain types of effects. *Control* considers the ability of outside organizations to manipulate the communication system in a purposive manner, and thus direct effects. While referring to essentially separate concepts of influence, the three aspects are clearly related. For example, *control* works largely through the manipulation of content (i.e. *bias*) and the limitation of use (i.e. *access*). In examining influence, one needs to to make clear the distinction between aspects of structural access and bias, and the impact of "controlled" access and bias.

In the following sections, I will examine each of these areas separately, and discuss how these aspects of structure can exert macrosocial influence. In doing so, I will also address a few of the major theoretical and research perspectives which seem to support the concept of that influence. In the end, this should lead to the development of a metatheoretical approach for the study of the influence of communication systems.

Access

Access refers to the structural boundaries or restrictions imposed upon the access to the communication system and/or the information it contains granted to potential users. These boundaries, or limits, may be imposed by physical attributes of the medium employed or by

the economic and/or political structure of both the communication system and other social systems within which the communication system operates. Further, access restrictions need not be absolute: they may impose only differing levels of difficulty in acquiring access to communication channels or their content.

Access restrictions may be imposed in a number of ways. The physical properties of a communication channel may place limits on any individual's ability to gain access to, or to make use of, that channel, either as a sender or a receiver. For example, written communication is restricted to those who are literate and have direct physical access to the written message. Verbal communication, speaking, is limited to those familiar with the language being spoken and who are within hearing distance of the speaker. Electronic communication requires access not only to the appropriate transmission/and or reception technologies, but to adequate sources of the power needed to run both transmitters and receivers.

Physical properties are not the only aspects of structure which can act to restrict access. A prominent concern of many media critics is the question of social, economic and/or political controls on access. That is, even if there are no technological (or physical) restrictions on access, people could have access restricted on political grounds, or because of cost considerations. Most considerations of access are based on access to the reception of messages through the communication system. However, access to the transmission system can be just as crucial, particularly access to mass communication systems.

Access restrictions can have considerable impact on social systems. Communication systems are useful only to the extent that they are, or can be, used: if any group, or segment of society, is denied access to the system, they are denied access to the effects (either positive or negative) of that communication system; if differential access is granted some group, that influences the mix of information system use among disparate user groups. This influence can be seen in the notion of information gaps (Donohue, Tichenor & Olien, 1975; Olien, Donohue & Tichenor, 1983), which explores the impact of differences in information acquisition and use. Other, related, potential influences may exist in the concern over the role played by media in socialization, and the potential harm to minority cultures from a lack of access to cultural programming. Equity issues can also arise through access effects, particularly if the communication system in question is beneficial (valuable) or if it is a primary medium for the transmission of essential and valuable information. In such cases, the inability of some groups to be able to receive that information can

have serious consequences, leading perhaps to the formation of an underclass (Cooke & Stern, 1984; Garnham, 1982; Golding & Murdock, 1986).

In a similar vein, Thomas Sowell (1980) has argued that the rise of differential access to information (through differential costs of information) in the U.S. has had profound effects on American society. Shifts in accessibility lead to shifts the structure of incentives to use certain types of information and communication systems, contributing to effects as varied as the rise of bureaucracy, an increase in litigation and the crowding of court systems, and the increasing political influence of special-interest groups (Sowell, 1980).

Technological limits on access

One of the major theories of the macrosocial impact of communication system structure was Harold Innis' (1964, 1972) theory of the time and space bias of media. Innis argued that the medium used for communication, in particular its technological structure, exhibited a degree of bias which had profound impact on how that medium was used, and thus on the culture which relied on that system for its primary means of communication. Part of that bias was in the form of the implications for access inherent in the technology. For example, Innis argued that there was a much greater potential to restrict access to the written word, by controlling literacy or the access to the physical medium, than there was to restrict the use of spoken languages. Such technological restrictions on access, by limiting use of certain kinds of information to a restricted class, set them apart as an elite, privileged class.

Similar, but more recent, concerns about technological limits of access to communication structures and channels have been addressed in the field of communication development, particularly in the area of rural telecommunications (cf. Bortnick, 1983; Parker, 1984). Many of these concerns are raised by the development of more sophisticated and expensive communication technologies, technologies which depend on the existence of an infrastructure which may not exist in rural or developing areas.

Other structural influences on access

Access can also be affected by non-technological aspects of the structure of communication systems. Structural impediments on access can also be placed by political, economic, and literacy limitations inherent in the organization of the communication system. Such restrictions may act to augment or reduce any naturally occurring information gap and thus have a profound influence on the evolution of the culture (cf. Donohue et al., 1975; Olien et al., 1983). They may oc-

cur in the nature of differential literacy, that is, the ability to make efficient and effective use of the system (Cooke & Stern, 1984). They may result from political differentiations (cf. Craig, 1979; O'Brien, 1983; Stonier, 1983). Or they may arise from economic or pricing considerations (Garnham, 1982; Schiller, 1983, 1984).

The Impact of Access

These are only a few of the ways in which aspects of the structure of human communication systems can exert macrosocial influence through *access*. These theories and approaches, while focussing on different forms of differential access, and different aspects of structure, do share one common perspective: the notion that structural tendencies which differentiate access to the system can have profound implications for the use of the system, and equally profound social consequences. And the effects of access are fundamentally related to its imposition of boundaries to the system, to what are essentially equity issues.

The basic impact of restricting access is simple: some individual or group will not have the same potential to utilize the communication system and the information it contains as another individual or group. This may create shifts in patterns of use, and thus in the effects of that use. Media dependency theory (cf. DeFleur & Ball-Rokeach, 1989; Rubin & Windahl, 1986) supports this by arguing that access and availability are antecedent conditions to an individual's experience with communication systems (media).

In addition, dependency theory suggests that as societies become more complex, people tend to become more reliant on communication systems for contact with other social institutions. As the dependency on any single medium increases, the influences/effects associated with that system are likely to dominate those of other systems. Thus, while different systems might have different access restrictions, the more important, the more central, the communication system and the information it contains is within a culture, the stronger the impact of any consistently differential access.

Bias

Bias refers to the presence of any structural factors in the communication channel(s) employed by the communication system which might favor or promote the carriage of certain types or forms of information, and the presence or absence of any other structural features contributing to a preference towards, or against, certain forms of communication, or the transmission of certain types of information on that system. Every communication channel has a degree and a type of bias implicit in its technology (i.e. transmission system), because

every transmission channel or system is inherently limited. That is, as Korzybski noted in his general semantics theory, no single channel can transmit the totality of reality which embodies communication (Johnson, 1972; also discussed in Severin & Tankard, 1988). Information theory (Shannon & Weaver, 1949; also Ritchie, 1988) made a similar point in a slightly different context: the inherent information carrying capacity of any communication system, its bandwidth, is finite, while the bandwidth of reality is infinite. Every channel must limit itself to transmitting a subset of the total information possible, and bias is introduced when structural features influence what is included, and what is not included, in the particular subset of reality contained in the content.

Bias may also be noogenetic. That is, it may also arise from the social structure of the communication system, from the patterns of its use. Traditional patterns of use may be biased towards certain potential users. Lakoff (1975), for example, argued that the development of language structures in the West held a male bias which had a negative impact on the ability of women to fully participate in society. Rakow (1988) suggested that certain media seemed to be biased towards specific genders. Similarly, various minorities have argued that the language used in many standardized tests are culturally biased.

This type of *bias* can be supplemented or mediated by other, noogenetic, attributes of the structure of the communication system. This may be done purposively, as in the case of some media policy, such as the Fairness Doctrine in the U.S. or the existence of prohibitions against, or limitations on, the transmission of certain kinds of programming which exists in many foreign countries. On the other hand, bias may be introduced as a side effect of efforts to influence the structure of the communication system to achieve other goals. For example, in making the American broadcasting system essentially self-financing through advertising there is a structural bias towards mass interest programming.

Bias and Communication

Whatever the cause, the effects of *bias* in communication systems occur in basically two ways. First, *bias* may result in the exclusion, or minimization, of certain types of messages, the impact of which would be similar to the influence of access restrictions. A second impact of *bias* occurs in a more subtle manner, through the development of cognitive and perceptual processes. Theorists as varied as Whorf (1956), Vygotsky (1962; also see Wertsch, 1985), and Mead (1962) have argued that perception and cognitive processes are strongly influenced

by the means through which the world is experienced. They argued that much of the experience and knowledge that we gain about the world is mediated, that it comes through communication systems. That mediated experience forms a foundation, not only for the development of our individual self-concepts, but for how we make sense of the world around us, and thus for our general socialization. To the extent that such mediated experience is biased through that process of mediation, the way we perceive and interpret ourselves, our behavior, and the world at large, is influenced by the internalized biases of the communication systems.

A similar strain of thought can be found in general semantics theory. One of that theory's basic ideas is that communication systems, particularly languages, are inherently limited in that they are constrained to be an abstraction of reality. As Johnson (1972, p. 306) noted, reality is "decidedly process-like, highly dynamic, ever changing." On the other hand, languages must be relatively static and consistent across both time and space in order to fulfill their communicative functions. An individual's attempt to communicate, according to semanticists, is the joint product of the condition prompting the attempt and the structure of language. The structure of language, in particular the bias inherent in the choices made as to how language abstracts from reality and in the choices made as to where to look for the similarities among objects that allows for abstraction to occur, clearly affects both the amount and kind of information which is communicated.

While these early theorists focussed on the role played by language, others (cf. Carpenter, 1968) have argued that languages are just one form of communication system, and that other forms of communication can be thought of as languages, and have similar influences. Specifically, recent research (Watkins, 1985) has suggested that as other communication systems become dominant, they will also have a strong influence on the development of cognitive and perceptual processes.

Technological Bias

While part of Innis' (1964, 1972) theory of the macrosocial influences of communication systems dealt with aspects of *access*, its primary focus was on issues of structural *bias*. Innis argued that the technological structure of the medium used for communication exhibited a degree of bias which could have a profound influence on how that medium was utilized within the society, with the kinds of messages that were likely to be transmitted. To the extent that any particular communication system became the primary means of commu-

nication for a society (or social organization), the bias inherent in that system's technological structure would influence the nature of that social organization or culture.

Pre-literate societies, for example, relied on communication systems (primarily speech) which had a very strong locality-specific "space" bias, and a very strong present "time" bias. Signals could carry only so far, and could be discerned only at the time they were sent. This, Innis argued, kept such societies small and confined to relatively small geographic areas. With the invention of writing and light, convenient, and cheap writing materials (such as papyrus) came the ability to send messages across space, and to preserve them across time. Such new technologies, argued Innis, permitted and encouraged the development of dynasties and empires.

It was not only the concept of writing that influenced social and cultural development, but the specific "technology" employed by the writing system. Logan (1986) and others (cf. Havelock, 1980) have argued that the specific form of writing also exerted a bias towards certain kinds of information, and certain kinds of thinking (information use) which had profound social impacts. Specifically, Logan (1986) argued that the development of the alphabet biased Western civilization towards "an emphasis on abstraction, analysis, rationality, and classification, which ... form the basis for Western abstract scientific and logical thinking" (p. 21). That bias has had a significant impact on the form and nature of modern Western societies.

Marshall McLuhan (1964; McLuhan & Fiore, 1967, 1968) extended Innis' theory of technology and society, specifically addressing the impact of the newer electronic communication technologies. McLuhan argued that radio and television (in particular) transcended all "space" limits while returning to a largely contemporary "time" bias. This, he argued, would have a significant impact on the nature of Western culture, and lead to the creation of the "global village." The new media technologies would lead to the development of new social structures and social relationships. Rakow (1988) has extended this examination of bias in technology to suggest that technology is gendered, that "the contemporary meaning and experience of gender does not exist somewhere outside of and distinct from technology; gender is articulated through it" (p. 68).

Other forms of structural bias

The theory of cultural imperialism (cf. Boyd-Barrett, 1979; Schiller, 1969; Tunstall, 1977) also seems to be based largely on the idea that the fundamental structure of communication systems may exert a cultural bias, a bias which is said to have serious social conse-

quences. While a large part of the concern is about the exportation of culturally biased content, there is also a concern that communication systems and structures, as whole units, are also culturally biased, and that in transplanting the systems and structures, one also transplants the cultural values embedded in those structures (Yu, 1977). These perspectives all suggest that there is a significant potential for influence in the structural bias inherent in communication systems.

As I noted briefly earlier, structural factors can also influence the type and nature of signals transmitted through any communication system. The socioeconomic structure of a communication system, and the need for that system to ensure its own survival and growth, may place an emphasis on the production/transmission of certain kinds of content (cf. Cantor, 1980; Melody, 1973; Owen, 1975). Structural and functional theories (cf. Altschull, 1984; Demereth & Peterson, 1967; Lasswell, 1966; Wright, 1986) argue that media exist to serve certain functions, which themselves suggest a certain bias in content. Herbert Gans (1979) suggested that the structure of the American press evidences a bias which acts to preserve certain fundamental values. Policy theories and research note that certain content can be promoted, through the use of subsidies, or discriminated against, through the imposition of taxes or penalties (cf. Cooke & Stern, 1984; Gandy, 1982).

The Impact of Bias

In this section, I have attempted to consider what kinds of influence have been proposed by various theories and perspectives for structural bias. *Bias* is caused by the fact that communication systems are limited, and choices must be made as to the content of those systems. A channel's inherent bias can certainly influence the selection of information and other materials which are transmitted over that channel. More importantly, when the bias of message and channel are similar, the formal appeal of the message is boosted, and thus becomes more effective (cf. Brummett, 1988). As the impact of communication occurs from the transfer of information, of content, it is clear that whatever influences the nature of that content will also influence the nature of its impact. To the extent that information and communication have an impact on people and institutions, systematic bias in a channel will also have an impact, and in essentially the same way. And as with access, the more important and the more central the communication system, the greater the impact resulting from any inherent structural bias.

It should be noted, though, that there are other, non-structural, potential sources of *bias* which need to be considered. Specifically, one

sizeable source of potential bias has been identified in the ability of communication system owners and operators to control the content of their systems. The aspects of structure which might permit or encourage such control, however, is the concern of the third basic aspect of communication systems: *control*.

Control

Control, for the purposes of this analysis, refers to the basic questions of what degree of control is permitted or encouraged by the structure of the communication system, and who is permitted that control. The ability to control the communication system brings us back to the two previously discussed issues of *access* and *bias*. Control of communication systems is manifested in two basic manners, through control of participation (*access*), and through control of content (*bias*). The actual impacts of *control* are thus manifested as aspects of the social structural (noogenetic) aspects of specific communication systems related to the issues of access and bias.

That is not to suggest that such managerial control is independent of structural influence. In fact, the focus of this consideration is the idea that aspects of the structure of communication systems do influence the degree of *control* allowed for any group, for any system (cf. Klabbers, 1986). Both technological (biogenetic) and social (noogenetic) aspects of the particular structure of a communication system can influence not only the nature of control, but the degree of control permitted under a certain structure. Unified, centralized communication systems permit a much higher degree of control than more diverse, decentralized systems. Similarly, social factors can indicate whether a system is conducive to the exertion of control, or where control is considered antithetical.

Certainly there are particular aspects or features of the structure of communication system which impact on both the type and degree of control which can be exercised by individuals, groups, or other social organizations. For example, the First Amendment in the U.S. is an important structural constraint limiting the ability of the government to exercise direct control over communication channels. The First Amendment, though, does not prohibit indirect government control, or control of communication channels by other groups or individuals. Another structural constraint can be imposed by technological considerations, such as the ability to make and/or receive transmissions.

Control and Communication

The concepts of *control* and communication are interlocked in history. Communication, in fact, has been defined as the attempt to exert control. The history of the relationship is a long one: Beniger

(1986) has traced the intertwined development of communication technologies and the extension and development of control from the Industrial Revolution. Much of the concern about the new technologies arises from concerns over their ability to exert control (Bates, 1989), as portrayed in Orwell's 1984.

One limiting factor to many of these concerns is the tendency to think of *control* as mastery, as domination. Mulgan (1991) notes that there are, however, two very different types of control which need to be examined: exogenous control and endogenous control. Exogenous control can be understood as the capacity to exert influence over the environment, over systems and individuals outside of the medium. On the other hand, endogenous control is conceptualized as more of an internal system for regulating the system itself. The traditional concern with control is, in this sense, concerned only with top-down exogenous control, while Mulgan points out that control may also be exerted from the bottom up, or across the system. Traditional concerns over control, therefore, are likely to ignore substantial portions of any system's capacity for control.

Control, therefore, should not really be treated as a single concept. Rather, there are two distinctive types of control, which can be referred to as internal control and external control. For our purposes, internal control is concerned with the ability of the communication system to control its own operations. External control deals with the ability of forces outside the communication system to exert influence. Both aspects of control need to be considered in any comprehensive analysis of the structural implications for *control*.

The issue of *control*, and the social implications of *control*, has been a primary focus of the theories of Marx and his various successors over the years. While Marx did not seem to address the question of communication systems directly to any great extent, his focus on the ability of a dominant, capitalist, class to control social institutions and to create a distorted ideology does address our primary concern: how aspects of control in communication systems may impact on societies and cultures. In discussing ideology, Marx was arguing that, through their economic control of the factors of production and persuasion, the dominant class was able to effectively portray their own particular view of the world (see Bottomore, 1983; Bottomore & Nisbet, 1978; Sallach, 1974). In fact, the ability to control what amounted to the systems for transmitting ideology (i.e., communication systems) was seen as being crucial to the maintenance of power in a society, whether it be a capitalist or a Marxist state.

The initial considerations of control were limited to direct, concerted, coercive action on the part of the dominant class, and thus only with the idea of external control. However, like much of early Marxist thought, the predictions of coercive control did not match reality very well. Thus, the notion of control and ideology underwent several revisions, leading to Gramsci's (1971) theory of hegemony, which asserted that the ability to control communication systems (cultural institutions) did not require coercive behavior. Rather, hegemony suggested that control was exerted through the structural relationships of communication systems encouraging the presentation of a consensual perspective of the world, through which the dominant class could exert social, political, economic, and cultural leadership (see Bottomore, 1983; Bottomore & Nisbet, 1978; Gitlin, 1987). With hegemony came an emphasis on the role of institutions and social structures in the process of control, in particular, on the influence of the socio-political structure of communication systems. In essence, the concept of hegemony permitted external control to be exerted through the presence of internal control mechanisms.

It was the members of the "Frankfurt school," though, who were among the first to focus specifically on the role of communication, particularly through mass media (or to use their phrase, the "culture industry"), in studying class societies. They reiterated the fundamental Marxist argument that the dominant class exerted direct control over the major communication systems in capitalist societies, and used that control to subvert or contain critical or antithetical perspectives or beliefs (Adorno and Horkheimer, 1979; also Bottomore, 1983). As in hegemony theory, this external control was accomplished in part through the commodification of culture and media messages (i.e., through the exertion of internal control over content).

The cultural studies tradition has continued to support the general notion of the macrosocial influence permitted by questions of the control of communication systems, and the emphasis on the influence of structure on content. For example, Raymond Williams (1975, 1976) has traced the influence of structural control on content, arguing that "we cannot examine the process of general communication in modern society without examining the shapes of these institutions" (1976, p. 12). And Stuart Hall has addressed the interaction of structure and ideology in communication systems (Streeter, 1984).

Thus, there is a strong implication in critical and Marxist approaches that power is exerted through the ability to control, through the exertion of both internal and external control, communication sys-

tems and their content. As these approaches are based on the presumption of power and control, they have tended to focus on the influences of control rather than the process of control. So that raises the question of how does the structural aspect of control have an effect?

Technology and Control

As with the other basic aspects of structure, the relationship of technological structure and *control* takes place in several areas. Beniger (1986) argued that the technological capacity of communication systems to carry and process information determined the extent to which users were able to extend their control through such systems. Mulgan (1991) argued that exogenous, or external, control depended on the presence of vertical lines of communication, while endogenous, or internal, control relied on horizontal lines of communication. The technological structure of the system thus influenced both the nature and the extent of the control associated with the system.

One problem with Beniger's analysis, though, is the presumption that the capacity to control is always fully utilized. Mulgan (1991) noted that control is not without cost; thus the desire to control faces practical limits in application. The exact nature of the costs are tied into the social and economic environment in which the system operates. That is, the noogenetic (social) structure imposes a set of constraints on the exercise of the capacity for control inherent in the biogenetic (technological) structure. However, Mulgan also recognized that the technology imposed certain limits on the social organization of control, that the structures cannot be considered in isolation. What this all suggests, though, is that the impact of technology on control needs to be viewed as one of potential, of creating or fostering a potential for control that may remain largely unrealized.

Along those lines, Innis (1972) noted that each new communication technology, each new medium, brought forth new patterns of communication. In doing so, each medium defined its own control system, and as one medium replaced another, created new patterns of control and power. The attributes of some writing systems allowed social systems to effectively limit the spread of literacy, and thereby could extend a degree of control over that system's use. New media, however, redefined those limits, and thus that control. McLuhan (1964; McLuhan & Fiore, 1967, 1968) argued that electronic communication, for example, by removing the potential constraint of literacy, reduced the capacity to control through literacy, and democratized communication.

There has been considerable research in recent years (cf. McQuail & Siune, 1986; Pool, 1983; Stonier, 1983) suggesting that some com-

munication technologies are inherently difficult to control; the technology is too simple, too cheap, too decentralized to permit a high degree of centralized control. Such technologies as copying machines, cassette recorders (both audio and video), and personal computers are seen as inherently democratizing in that it is very difficult for central authorities to control their use. Their relative cheapness and ease of use, diffusion, and diversity of content sources all make it very difficult to control the communication system, although various countries have tried.

Social Structure and Control

Returning to issues of direct control, concern over the relationship between structure and *control* can be found in theories of political economy, and in current research considering the concentration of ownership and economic power in communication systems and their possible influence on content and access (cf. Bagdikian, 1983; Murdock & Golding, 1979; Picard, Winter, McCombs & Lacy, 1988; Schiller, 1981). This concern is based on the idea that individual owners of media outlets have the ability to exert direct control over the content of their medium, to require or prohibit certain messages. In this sense, such concerns are primarily over external, exogenous, form of control. Further, to the degree that structures permitting, or encouraging, multiple ownership exist in the culture, there is an increased ability to exert widespread, coherent, and consistent, internal, control over the content of the communication system.

Not all *control*, however, is exerted directly by owners or managers. Klabbers (1986, pp. 86-87) argued that "communication structure produces a hierarchy of regulation and control as a result of differentiation and integration pressures." Various studies of media industries (cf. Cantor, 1971, 1974, 1980; Elliot, 1979; Gitlin, 1983; Tuchman, 1974, 1981) have suggested that much of the control over content, and particularly content standardization, occurs through the socialization of new members of the organization and through the structural constraints of the medium and/or the process of creating media content. The socialization process, though, is itself influenced by aspects of structure, such as where the process takes place, the degree to which the process is formalized, and so forth. That is, over horizontal, internal, lines of control. Clearly, aspects of the structure of any particular communication system can thus indirectly influence the amount and location of control through the socialization and production process.

The Impact of Control

Control often works in conjunction with the other two basic dimensions. That is, *control* is often manifested in the ability to manipulate access to the system (as either sender and receiver) and through the ability to manipulate, and thus to bias, the messages sent through the system. Thus, many of the process features of *control*, and the manner in which *control* exerts its influence, mirror those of *access* and *bias*. But that is not the focus of this section, of this examination of control. What I do want to emphasize in this section is that structural aspects of the system, whether they be social or technological, do influence the ability of others to exert control, both internal and external, over the system. That is, structural features influence both who control is granted to, and the nature and degree of control that is granted.

From a structural perspective, the primary issue is whether any aspects of either the physical or social structure of the communication systems enhances (or retards) the general capacity for controlling the communication system. Of secondary interest is the actual degree to which the inherent capacity of a communication systems for control is realized in the existing system. Both the degree of control in a system and the centrality of the particular communication system are positively related to the degree of the impact of control. As noted above, though, the actual process through which control may have a social impact is through the ability to control access and bias, and follow those mechanisms.

Towards a Metatheory of Structure and Culture

While the above sections have focussed on how specific aspects of media structure have been said to have social impacts, I do want to spend some time considering the more fundamental process of how communication systems have macrosocial influences.

Fundamentally, the impact comes through the role communications systems play in creating our world and our society. It comes from the fact that communication systems and their content are major socializing and culturalizing systems.

We do not know the world as it is; what we know of the world is totally mediated. Even that part that we experience directly is mediated by our minds: in making sense, we impose order and manipulate perceptions.

Moreover, the portion of our "world" that comes to us through direct experience is shrinking as the portion of the world that we find ourselves needing or wanting to know about expands. More and more, what we know comes through mediated experiences. Greater portions of our stocks of information and knowledge is filtered through com-

munication systems. The order and meanings that are imposed are not ours, but those of the communication systems. And as we act on the basis of what we know and understand, on our socialized version of reality, the ways in which communication systems shape our awareness also shape our actions.

To the degree to which the communication systems, and their socializing and reality-constructing influences, are shared, the influences are also likely to be shared. They are macrosocial as well as individual. Macrosocial effects are, in essence, cultural effects. In any increasingly fragmented, increasingly mobile, expanding environment, culture tends to transcend individual experiences. The culture which provides people with a common heritage, with common experiences, is increasingly reliant on shared mediated experience. We talk not of the unwed mother down the street, but of Murphy Brown. That is why the dominant media, the dominant communication systems which provide that shared experience, are becoming so influential. And why the influence of structure is so important, even when the the system is not providing that shared experience is vital.

For access, bias, and control influence how communication systems are used. And how they are used influences not only the degree to which media can provided shared experiences, but the nature of those shared experiences. These aspects of structure can thus influence the formation of culture, affecting not only social but individual behaviors.

To paraphrase Marshall McLuhan, the medium is clearly at least a part of the message. How the medium, or communication system, is structured, both in terms of its technology, the application of that technology, and the organizations and institutions developed for utilizing that system for communication, all impact on how the system will be used, and thus how the system will have an impact on the society which utilizes it.

Conclusion

From the above discussions and sampling of theories, research, and approaches, it seems fairly clear that there are some aspects of the structure of human communication systems which can exert what can be termed macrosocial influence on those cultures and societies which make use of those systems. And while the theories and approaches are disparate, and in many cases emerge from different disciplines and paradigms, the fundamental approach to the nature of macrosocial effects is remarkable similar. Structural elements of communication systems influence how the system is used in a society, in terms of both who is allowed to use the system, and the nature of

the information, or communication, that the system transmits. The nature of the system and how it is used becomes part of the cultural experience of members of the society, thereby influencing their perspectives towards the culture and the world at large. It also influences the nature and distribution of more direct effects of communication. Furthermore, there is a strong suggestion that the more fundamental, the more central, the more dominant the communication system is in a culture, the stronger its macrosocial influence.

There would seem to be three basic aspects of the structure of communication systems which can exert influence in this manner. Aspects of structure can directly influence the nature of the communication and the types of information conveyed (what was termed "*bias*"). Other aspects of structure, by limiting *access*, can influence the distribution of both the positive and negative effects of communication. The third aspect of structure, termed "*control*," is essentially different from the first two in that it is concerned with indirect influence. The *control* aspect considers the effect of structural features on the ability of other social organizations or individuals to exert control over the system and to thereby influence *access* or *bias*. Together, *access*, *bias*, and *control* outline the means whereby the basic nature of the structure of human communication systems shape how those channels are used, and thus the influence that they can exert.

There would thus seem to be enough evidence in earlier theories and research to provide a basis for the development of an integrative metatheory: a synthesis of subdisciplinary microtheories. Or, to return to my earlier metaphor, that there are enough threads to begin to weave a coherent approach towards the study of the influence of the structure of communication systems of all sorts on the cultures that employ them. There is enough, if you will, to begin to develop a metatheory of macrosocial effects. It remains to pull in even more threads in the hope of achieving a greater definition with this tapestry, to develop a more precise theoretical approach which would lend itself to the creation of testable hypotheses.

What I hope this essay has accomplished is to outline an orienting strategy, to delineate a path and to argue that it is worth our while to travel down that path and explore a little further in our goal to achieve a better understanding of the influence of communication systems. Of course, much remains to be done in synthesizing the theory on structural effects into specific discrete theories of influence, but the effort would appear to be worthwhile. And it is hoped that the apparent success of this effort to create a metatheory which crosses tradi-

tional theoretical boundaries would promote other efforts to integrate and synthesize existing theories and approaches in novel ways.

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