10 Technology in/as Applied Communication Research

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Communication technologies are a pervasive presence in contemporary society. A complex, convergent landscape of conventional media, telecommunications, and computing affords, shapes, and supports (and is itself shaped by) the whole spectrum of human communicative action and understanding. Today’s technologies are not merely channels that “deliver” messages or content, in the traditional production–consumption sense of mass media; they also constitute milieux for sociality, blending the familiar routines and conventions of conversation and small group interaction, the reach and connectivity of global networks, and the sensibilities of local communities and larger cultures. The social changes associated with new technologies in the last few decades have encouraged scholars in many disciplines, including communication, to rethink distinctions between content and form, message and medium, structure and action, and cause and effect; they vividly illustrate Latour’s (1991) maxim that “technology is society made durable” (p. 103).

As these familiar theoretical and practical distinctions elide, there are important implications for applied communication research. In the first section of this chapter, I present a brief overview of the ways that communication technologies have been conceptualized and studied in the communication discipline over time, beginning with the separation of communication channels and processes that emerged with mass media research and carried over into early studies of new information and communication technologies (ICTs), through more recent frameworks that consider process and channel, interpersonal and mass, and communicative action and technology as inseparable aspects of communication and culture. This latter view frames technology and communication as mediation (e.g., Altheide & Snow, 1988; Fornäs, 2002; Gumpert & Cathcart, 1990; Silverstone, 1999, 2005) and redefines communication technologies as both resources for and manifestations of communication, meaning, and culture. I outline several main characteristics of mediation and contrast them with the “mass” perspective in communication research.

In the second section, I discuss selected studies drawn from four social contexts of particular interest to applied communication research where new media and ICTs have been widely adopted and studied (organizational communication, health communication, political communication, and instructional communication), to show how the uses and understanding of communication technologies have evolved in each context. In the final section, I return to the concept of mediation, and argue that because it considers technology and practice as inseparable, mutually determining aspects of communication, it suggests a compelling way forward for applied communication research and for the communication discipline more broadly. Rather than approaching technology instrumentally, as a set of tools for achieving some other “purely” communicative or pragmatic end (a view that might be called “technology in communication and applied communication research”), technology can be understood as both enabling and constituting communication, meaning, and culture, and as continuously reinscribed and re-created in
practice (what we might call “technology as communication and applied communication research”).

Of course, the basic insight that systems/structures are both the means and the ends of social action is not new. Giddens’s (1984) theory of structuration, for example, posited that social structure provides the “rules and resources” for action, and that structure continually is reconstituted in action. Weick (1979) also argued that communication constitutes organization. A similar point can be made about the relationship between communication and technology across applied communication contexts. If, as Silverstone (2005) observed, mediation is the defining condition of contemporary experience, manifested in technological systems and social relationships alike, frameworks that situate technology as communication are better suited to the study of communication (including applied communication research) in an era no longer dominated by “mass” notions of society and communication than are those frameworks that view technology solely as a tool or channel—that is, technology in communication.

Defining Communication Technology: From Mass Media to Mediation

What is communication technology? If communication has been a notoriously elusive concept for communication scholars to define, they have had little trouble distinguishing between the phenomenon itself and the devices and methods that people use to do it. Throughout most of the discipline’s history, communication technology has been defined instrumentally, as a means to an end rather than as a constitutive element of communication per se.

Of course, humans have used technological tools to interact and express themselves since the days of cave paintings, bone carvings, and pictographs (Crowley & Heyer, 2007; Williams, 1981). However, with the introduction of moveable type and print in the 15th century—innovations often characterized as the first mass-production technology—and, to an even greater extent, with electrical technologies in the late-19th and early 20th centuries, scholars began to consider communication technologies as objects of study in their own right. The industrial scale of the technologies, their capital-intensive and large-scale infrastructures, the volume of material being produced and distributed, the size of the audiences they could reach, and, crucially, the influence these systems seemed to have on everything from individuals’ attitudes and behavior to popular culture and fashion to large-scale political and social movements, seemed both new and provocative (Graham, 2000). Between the 1930s and 1950s—the height of the age of mass production and consumption, mass society, mass man, and so on—sociologists, critics, psychologists, political scientists, historians, and engineers launched the study of the social, psychological, and cultural effects of mass media and mass communication on individuals, audiences, and societies (E. M. Rogers, 1994).

From this perspective, channel became a key variable in communication research, distinct from content and process, particularly in the wake of the “communication theory” model of signal transmission proposed by Shannon and Weaver (1949) and adapted by Berlo (1960) into the “sender–message–channel–receiver” (SMCR) formulation as a “scientific” model of human communication.¹ Channel effects were seen largely as a function of scale: Complex, expensive “big media” (such as newspapers and radio), to use Schramm’s (1977) phrase, might be expected to have commensurately powerful and widespread effects on audiences or society at large; “little media” (such as newsletters and slide projection) were more limited in scope and effect.

Indeed, the concept of channel became so ingrained among communication scholars
that by the 1980s, E. M. Rogers (1986) could describe the discipline itself (at least in the United States) as a
dichotomy [divided] on the basis of channels: interpersonal channels, which involve a face-to-face exchange between two or more individuals, and mass media channels, all those means of transmitting messages such as radio, television, newspapers, and so on, which enable a source of one or a few individuals to reach an audience of many. This classification is mainly on the basis of the size of the audience. (p. 3)

This emphasis on channels encouraged researchers to define communication technologies primarily on the basis of their technical features, particularly channel capacity. From the cultural fixity and standardization embodied in mechanically printed texts (Eisenstein, 1979) to the “separation of communication from transportation” achieved by the telegraph (Carey, 1989, p. 203) to the reproduction of sounds and images via photography, motion pictures, sound recording, and electronic media (Williams, 1981), communication scholars attributed the significance and influence of media technologies mainly to their role as “extensions of man” (McLuhan, 2003) across time and space.

With the introduction of newer ICTs in the late 1970s and 1980s, communication scholars’ attention shifted to the convergence of older media technologies with computing and telecommunications. However, definitions of communication technology remained fixed on technical features and channel capacity. The technologies might be new, but their basic role as tools was not: Whereas mass communication researchers had investigated the effects of mass media on audiences, early new media researchers studied the impacts of new technologies on organizations and society (Webster, 2002). Rice and Associates (1984) and E. M. Rogers (1986), for example, contrasted the two-way transmission capabilities of new media channels with the one-way transmission of mass media. Durlak (1987) proposed that communication technologies would be perceived as more or less interactive depending on their interface or system features. Later, after the introduction of Internet Web browsers and graphical interfaces, Reeves and Nass (1996) argued that the formal qualities of computer interfaces affect users’ cognitive processing of online media content, encouraging users to anthropomorphize computers and other new media devices.

By the late 1980s, however, many researchers and scholars had become dissatisfied with this conventional approach to communication technology, especially the technological determinism implicit in both media effects research and studies of the “impacts” of new technologies. Coincident with the broader shift already underway in the communication field away from large-scale quantitative studies toward a focus on local practices, everyday life, subjectivity, interaction, and meaning (e.g., Gerbner, 1983), these scholars sought to understand communication technologies as embedded within complex, diverse cultural landscapes of artifacts, meanings, and practices, and to reframe people’s engagement with technologies as something more than audience membership, reception, or consumption. In an early book on new media technologies, for example, E. M. Rogers (1986) defined communication technology as “the hardware equipment, organizational structures, and social values by which individuals collect, process, and exchange information with other individuals” (p. 2). Beniger (1986) also observed that “the nineteenth century revolution in information technology was predicated on, if not directly caused by, social changes associated with earlier innovations” (p. 10).

Beginning in the 1970s, some communication scholars had begun to explore concepts drawn from political economy, cultural studies, critical theory, and science and technology studies (STS), particularly the critique of technological determinism advanced
within STS during the period. This critique catalyzed a wave of historical and sociological studies of technology in the 1980s and 1990s across a wide range of disciplines and fields, including communication. The sociotechnical approach of STS holds that material aspects of technology must be studied in conjunction with their social, temporal, political, economic, and cultural contexts; indeed, from this perspective, the technical features of technologies may matter less than how they are actually used and the meanings that people attribute to them (MacKenzie & Wajcman, 1999). Concepts from STS, such as interpretive flexibility, trajectories, reverse salients, mutual shaping, boundary objects, and especially the social construction of technology, found numerous adherents among communication technology researchers and scholars in the 1990s, particularly those investigating the uses of communication technologies in organizations (Fulk, 1993; Jackson, Poole, & Kuhn, 2002; see also Boczkowski & Lievrouw, 2008).

Over the last decade, this reflexive, contextual, and critical approach has been widely adopted among communication technology researchers. As the French media historian Flechy (1995) noted, “The history of an invention is that of a series of technological and social developments, together with interactions between the two spheres. A new communications system is only established at the end of a long process in which each stage warrants attention” (p. 2). The deterministic language of effects and impacts largely has been superseded by more relational, subjective, and meaning-driven frameworks and concepts, such as interactivity, identity formation and self-presentation, and the creation and maintenance of community. The rejection of technological determinism, and a relatively strong form of social constructionism, has become the prevailing perspective in recent new media studies (Lievrouw & Livingstone, 2006a). Definitions of new communication technologies now recognize that their material aspects are fully and inextricably entwined with their cultural, social, historical, economic, and political contexts. For example, Lievrouw and Livingstone (2006b) proposed a definition of new media that comprises information and communication technologies, and their associated social contexts, including artifacts or devices used to mediate, communicate, or convey information; activities and practices in which people engage to communicate or share information; and social arrangements or organizational forms that develop around the artifacts/devices and activities/practices.

Perhaps what is most significant about the shift toward these more socially contextualized views is that scholars have had to rethink people’s relationships with and understandings of media and communication technology. Consequently, recent media scholarship has moved away from theories of mass communication and mass society, and the preoccupation with technical systems, features, and effects. Mediated content and interaction now are seen as socially and culturally diversified and selective, as well as mass produced and consumed. Some forms of communication are highly individualized, some are collective, and some are mixed modes; in many situations, no longer is it easy (or necessarily meaningful) to separate producers and consumers, senders and receivers, or content and channel. Socially embedded communication technologies can be seen as “doubly material”: They are both the tangible means of communicative expression and culture, and tangible cultural expressions in themselves.² They are form and content, means and ends, and the action and structure of communication and culture. In a real sense, they fulfill McLuhan’s (1967/2003) insight that “the medium is the message” (p. 19).

Given this shift in perspective, a number of scholars have begun to characterize people’s engagement with ICTs and new media as mediation, in both the technical sense and in terms of interpersonal participation or intervention (Fornäs, 2002; Silverstone, 1999, 2005). Communication scholars first turned to the mediation idea in the 1980s as a con-
ceptual bridge between interpersonal and mass communication (e.g., Altheide & Snow, 1988; Anderson & Meyer, 1988; Gumpert & Cathcart, 1986, 1990; Meyer, 1988). Many had criticized the interpersonal–mass divide in the communication discipline, particularly as new communication technologies diffused into everyday life, work, and leisure (e.g., Kreps, 2001; Lievrouw & Finn, 1990; Reardon & Rogers, 1988; E. M. Rogers, 1999; Rubin & Rubin, 1985).

A full review of the literature related to the mediation perspective is outside the scope of this chapter. However, a few points serve to summarize how the mediation perspective differs from the mass communication perspective as a way to think about people’s engagement with communication technologies and media (see Table 10.1).

First, mass communication ordinarily is conceived and represented as a linear, cumulative transmission process, as in the classic SMCR formulation. This conception, in fact, is a metaphor for the transportation of goods over geographic distance, and has dominated mass communication studies historically (e.g., Carey, 1989). Mediation, however, is better understood as recombinant and reflexive, the result of the continuous interplay of technology development, use, and breakdown; communicative action; social circumstances; and shared meaning. Mediation is “a more or less continuous activity of engagement and disengagement with meanings which have their source or their focus in...texts, but which extend through, and are measured against, experience” (Silverstone, 1999, p. 13). Thus, mediation is closer to relational or meaning-based definitions of communication, such as the convergence model proposed by E. M. Rogers and Kincaid (1981; see also Kincaid & Figueroa, this volume), or Carey’s (1989) ritual view, where communication “is directed not toward the extension of messages in space but toward the maintenance of society in time; not the act of imparting information but the representation of shared beliefs” (p. 18). Mediation enables, supports, facilitates, and constrains communicative action and representation; it is not merely the insertion of technology into an otherwise “pure” or unmediated human communication process.

Second, the study of mass communication, given its roots in industrial-era notions of work and society, often is predicated on hierarchies as the natural and archetypal form of social and technological organization. The mass distribution of messages, content, and meaning largely has been conceived as a one-way, one (or few)-to-many flow or cascade from the top to bottom or center to periphery of social systems. However, mediation assumes that in addition to hierarchical structures, society and technology today can be seen as a network of networks (Castells, 2001)—flexible, reorganizing, interrelated, point-to-point technological and social webs that can take on the forms or relations that are best suited to the purposes at hand. As Lievrouw and Livingstone (2006b) explained:

| Table 10.1 Mass Communication and Mediation Perspectives on Communication Technology |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Communication Processes        | Linear, cumulative             | Recombinant, reflexive          |
| Social/Technological Structures| Hierarchical, centralized:     | Networks: N-way, point-to-point, flexible, reorganizing |
|                                | top-down, few-to-many, stable  |                                  |
| Distribution and Access         | Scarce, costly, limited        | Ubiquitous, pervasive           |
| Grounding for Meaning           | Production and reception       | Emergent from interaction, relations |
The term “network” denotes a broad, multiplex interconnection in which many points or “nodes” (persons, groups, machines, collections of information, organizations) are embedded. Links among nodes may be created or abandoned on an as-needed basis at any location in the system, and any node can be either a sender or a receiver of messages—or both. (p. 24)

Third, mass communication studies have assumed that the distribution of, and access to, media technologies, sources, and content are scarce, capital- and resource-intensive, and valuable. In traditional workplace, classroom, and household settings dominated by mass media, technologies, and content are physically fixed, limited in quantity, and typically shared. The mediation perspective, on the other hand, assumes their ubiquity, in the sense that technologies “affect everyone in the societies where they are employed” (Lievrouw & Livingstone, 2006b, p. 25), even if not everyone uses or has access to them to the same extent. Silverstone (1999) suggested the sense of ubiquity associated with mediation: “It is difficult, probably impossible, for us...to step out of media culture, our media culture. In this we are like linguists trying to analyze their own language” (p. 13).

Fourth, mass communication studies tend to emphasize the production and consumption/reception of mass-produced content, especially in their focus on media effects. The mediation perspective, in contrast, emphasizes the interactivity among people and resources afforded by networked technologies, social structures, information sources, and personal relationships. Fornäs (2002) noted that “our communication society is based on mediations between texts and people, in that people pass and meet each other through texts, just as texts pass and encounter each other through people” (p. 104). Moreover, as Silverstone (1999) pointed out:

The circulation of meaning, which is mediation, is more than a two-step flow.... Meanings circulate in primary and secondary texts, through endless intertextualities, in parody and pastiche, in constant replay, and in the interminable discourses [in which we] act and interact, urgently seeking to make sense of the world. (p. 13)

Communication Technology and Applied Communication Research: Four Contexts

To understand the scope and significance of these shifts in perspective regarding communication and technology, from “mass” to mediation, I turn to four social contexts of particular interest to applied communication researchers where the relationship between communication technology and communicative action has been extensively studied: organizational, health, political, and instructional communication. Individually, each of these contexts has generated a substantial body of research, as shown in the separate chapters in this volume devoted to them; consequently, none of them can be reviewed comprehensively in the space provided here. However, by highlighting a few studies in each area, I hope to illustrate the extent to which the uses and understanding of communication technologies have evolved in the communication discipline, including applied communication research. The chapter closes with a discussion of the implications of the shift toward mediation for future research and scholarship.

Technology and Organizational Communication

Organizational communication is a good place to begin any discussion of communication technology studies, for it was one of the first areas within the communication disci-
pline where scholars recognized the enormous social and relational implications of ICTs and new media (Culnan & Markus, 1987; Fulk & Steinfield, 1990; Jackson et al., 2002; Poole & DeSanctis, this volume; Seibold, Lemus, Ballard, & Myers, this volume; Taylor, Flanagin, Cheney, & Seibold, 2001). The uses of ICTs in organizations was one of the first major research fronts in communication technology studies, mainly because large private- and public-sector organizations often were the first entities that could afford to adopt and use the new technologies, including audio- and videoconferencing, computer-mediated communication (CMC) and collaboration systems, and enhanced telecommunications services.

Broadly speaking, studies of communication technologies in organizations have focused on two main phenomena: organizational structure and organizational communication processes. In the first line of work, many early studies of ICTs in organizations addressed their structural consequences (e.g., Hiltz & Turoff, 1993; Johansen, Vallee, & Spangler, 1979; Kling & Scacchi, 1982). Investigators were particularly interested in the effects of ICTs on superior–subordinate relations, information flow within established structures, and the implementation of (or resistance to) structural change (e.g., Markus & Robey, 1988; Orlikowski & Robey, 1991). In this stream of research, social network analysis and systems theory have been widely employed to investigate structures and relationships within and across organizational boundaries (e.g., Monge & Contractor, 2003).

Over time, the emphasis in research on communication technologies and organizing has shifted toward a view of technological systems, organizational structure, and action as mutually determining. For example, Scott Poole and his associates have advanced adaptive structuration theory (AST) to account for the role of communication technologies in organizations (see Poole & DeSanctis, this volume). Based on Giddens’s (1984) structuration theory, and influenced by concepts from STS, AST contends that the interplay among ICTs, people, and organizational structures allows people in organizations to construct their own definitions and uses of technology (DeSanctis & Poole, 1994; Poole & DeSanctis, 1990).

Researchers also have examined the influence of ICTs on organizational communication processes. Many early studies in this line of work took a fairly straightforward approach that emphasized channels, comparing the technical capacities and features of new systems with face-to-face interaction for various work situations, message types, or decision-making tasks (e.g., Culnan & Markus, 1987; Daft & Lengel, 1986; Rice & Love, 1987). These studies concentrated on the use of e-mail and computer conferencing, and were often designed as laboratory studies (Rice, 1992). This research suggested, for example, that computer messaging (i.e., e-mail) is similar to telegraphy and probably best suited to simple, unambiguous, task-related messages. CMC also can give users control over information flow, reach more people at one time than is possible via other channels, provide information simultaneously to remote and local workers, and increase the involvement of both groups (Eveland & Bikson, 1988). CMC also allows users to increase their range of contacts and form relationships with others who share their interests but with whom they otherwise are unacquainted (Constant, Sproull, & Kiesler, 1996).

One of the most fully articulated channel-based theories in this line of work is media richness theory (Daft & Lengel, 1986; Daft, Lengel, & Trevino, 1987). Media richness theory hypothesizes that some systems are more suitable for certain types of communication than others, depending on their bandwidth (the capacity to carry information). High-bandwidth or rich channels (such as full-motion video with audio) are said to be like face-to-face interaction and, thus, better suited to carry messages that are uncertain, equivocal, or ambiguous, such as those involved in bargaining or negotiation. In contrast, lean channels with less bandwidth (such as text on a screen, as in e-mail) are better for
simple, clear, and unambiguous messages, such as delivering task-related directions. The theory predicts that effective communicators will match the channel they choose with the degree of richness required for a particular message. Rice (1993) later refined this theory to propose the concept of media appropriateness.

System- or channel-centered theories, such as media richness theory, were later criticized for failing to capture the complexity of real interaction (Culnan & Markus, 1987; Rudy, 1996). Over time, investigators have placed less emphasis on the channels per se and more on organizational culture, context, and the social construction of technologies (e.g., Fulk, 1993; Jackson et al., 2002). Other studies have emphasized social and interaction processes, including group and organizational dynamics, norms, constraints, and conflict (Aakhus, 2001; Franz & Jin, 1995; Fulk & Steinfield, 1990; Lea, 1992), as well as interpretive and critical perspectives, and ethnographic methods (Taylor et al., 2001). Technology and Health Communication

Generally speaking, the study of health communication—another key arena for applied communication research—has followed two main paths: (1) interpersonal and group communication (including provider–patient interaction, small group social support processes, and issues related to organizing), and (2) the design of large-scale campaigns that use media (principally, mass media technologies) to deliver authoritative health information to relevant audiences (Kreps, 2001; Kreps & Bonaguro, this volume; Ray & Donohew, 1990). Neuhauser and Kreps (2003) described these two approaches as “the provision of health-care delivery and the promotion of public health...disseminating messages from experts to the public in the hope of motivating the public to change specific behaviors” (p. 8). As this description suggests, the relationships involved often are asymmetrical: Providers and the health-care organizations and institutions they represent typically are cast in the role of expert knowledge resources, whereas patients, families, and the lay public are cast as less informed than these professionals, more in need of education and behavioral change, or otherwise lacking some knowledge or motivation that providers can supply (the ethical implications of this situation are discussed in Guttman, 1997).

Kreps (2001) also noted the parallel between the competing domains of communication in health-care provision and in public health promotion and the historical interpersonal–mass communication divide within the larger communication discipline. The campaign domain has tended to attract mass media effects researchers with interests in medicine and health, whereas the health-care delivery side has engaged interpersonal, group, and organizational communication specialists with health-related interests (Kreps). Some media campaigns have been remarkably effective in raising public awareness of health problems, such as breast cancer, smoking risks, HIV, AIDS, heart disease, and high blood pressure (excellent case studies are collected in Rice & Atkin, 2000; see also Witte & Roberto, this volume).

However, few media-driven campaigns by themselves have produced major changes in individual or collective behavior or health outcomes. Neuhauser and Kreps (2003) observed that “unfortunately, many of our health communication efforts have not succeeded” and wondered “why are our scientifically sound messages not more effective in engaging people to change behavior?” (pp. 8–9). Among health communication researchers, a common rule of thumb has been that interpersonal approaches are far more effective than mass media messages for changing individual behavior, but do not scale to produce population-wide change (Cline & Haynes, 2001; Kreps, 2001). As a result, some well-funded campaigns have employed a combination of broad-based media messages
and interpersonal contact and local follow up, bringing together specialists in media research and interpersonal and group communication, such as the Stanford Heart Disease Prevention Program, conducted from the 1970s to the early 1990s (Flora, 2001; Fortmann & Varady, 2000), and the National Cholesterol Education Program, underway since 1985 (Cleeman & Lenfant, 1998).

As in so many other social contexts, new media and communication technologies have had important consequences for health communication; they have blurred familiar lines between interpersonal and mass communication, as well as communication in health-care delivery and public health promotion (see Kreps & Bonaguro, this volume). Beginning in the early 1990s, the rapid growth of the World Wide Web and the introduction of Web browsers made a much wider range of information more accessible to more people than ever before. Web users have discovered a new universe of health-information resources online and new opportunities to seek and share what they learn with others.

Studies by the Pew Internet & American Life Project have documented how rapidly Americans have turned to the Internet for health-care information and support, a phenomenon some researchers are calling “e-Health” (see Kreps & Bonaguro, this volume). Roughly 80% of adult Internet users (113 million in 2006, approximately half of the adult U.S. population) regularly search online for health information, a percentage that has been consistent since 2002 (Fox, 2006; Madden & Fox, 2006). Those who are ill and their caregivers use e-mail and chat rooms to connect with others with similar health problems and to share their experiences, advice, information, and research findings. Pharmaceutical and equipment companies sponsor some of these groups as part of their marketing efforts. In the last few years, there have been significant increases in the proportion of the U.S. population seeking information online about particular physicians or hospitals, or about experimental treatments or new medicines (Fox, 2006). In this evolving context, it has become increasingly difficult to separate interpersonal interaction, constantly updated online information resources, and broad-based media campaigns. Excerpts from e-mail and journal articles get posted to blogs; online support groups discuss and criticize the latest scientific findings. Patients and families seek therapies and advice, enroll in experimental research protocols, and compare the records and reputations of different institutions and providers wherever they are located (Fox, 2006; see also Street, Gold, & Manning, 1997; White & Dorman, 2001; Wright & Bell, 2003).

Today, people’s familiarity with online medical information resources, and their growing tendency to bring that information into their consultations with health-care professionals, has begun to alter the relationship between providers, patients, families, and the public. This new engagement with communication technology and its consequences for interaction, are reflected in a growing number of health communication studies (Rice & Katz, 2001; Street et al., 1997). In a review of research on seeking health information online, Cline and Haynes (2001) suggested some of the potential consequences of the power shift associated with new patterns of information access:

Providers [may be] unprepared to deal with the magnitude of available information…. Providers may be stressed by added responsibilities for information seeking and clarification…. Conflicts between provider and client may be likely as consumers locate information that leads them to challenge, question, or “second-guess” providers, indicating diminished trust in their physicians. (p. 675)

Researchers with the Pew Internet & American Life project have confirmed this scenario; survey respondents reported that when they bring information from outside sources to the office visit, “they are met with mixed reviews from doctors” (Fox & Fallows,
Leah A. Lievrouw

2003, p. 15). Some physicians ignore or dismiss what patients learn on their own as unreliable or unprofessional, sometimes as a way to regain control of the clinical interaction process; others encourage patient learning and exploration, and take on more of an information gatekeeper role, helping patients and families to interpret and evaluate the information they find.

Power relations between providers and patients is not the only aspect of health communication that has been affected by the use of new communication technologies. Another topic is the use of new media technologies in health support groups, especially online, but also via mobile telephony (e.g., S. W. Campbell & Kelley, 2006; Street et al., 1997; Sullivan, 2003; White & Dorman, 2001; Wright, 1999, 2002; Wright & Bell, 2003). A number of techniques also have been proposed for evaluating the quality of online health information and its potential for generating behavior change (Cline & Haynes, 2001; Cummins et al., 2003; Evers et al., 2003).

It seems clear that the use of new media technologies is reshaping health communication at both the interpersonal level and in the wider culture. Indeed, these two spheres of health communication are more interwoven today than was possible when mass media and individual providers supplied virtually all of people’s health information. The interpersonal and the cultural continually inform and redirect each other, shaping the content and channels of health communication alike. The linear, directed messages of classic health-information campaigns have given way to a more recombinant, reflexive mode of creation, circulation, and use of health-information resources online. Providers and institutions no longer can assume that they control the flow or direction of information, from reliable, authoritative sources to the larger public; instead, such information is filtered through interpersonal advice networks online and off-line. Medical controversies or research debates previously confined to the pages of specialized journals now circulate in the news and entertainment media and online. Many resources that were once scarce—too arcane, expensive, or remote for laypeople to understand or retrieve—now are readily and broadly accessible. The significance and meaning of health information no longer is established by professionals and institutions, and then delivered to ready and receptive patients or audiences; increasingly, professionals and institutions are being called on to interpret, justify, explain, or defend the information they present, and to use communication technologies effectively to interact and engage with the patients and communities that they serve.

**Technology and Political Communication**

Another familiar context for applied communication research is political communication, where research traditionally has centered on analyzing the design and effectiveness of advertising and public relations campaigns advocating particular positions, issues, or candidates, on one hand, and news/popular press coverage of those positions, issues, and candidates, on the other (see Kaid, McKinney, & Tedesco, this volume). In both cases, the objective is to assess the influence of such “purposeful communication about politics” (McNair, 2003, p. 4) on broad-based public opinion, political participation, or political choices, particularly voting.

Political communication is one of the oldest specialties in the communication discipline, and has been linked closely with mass media research since the days of Harold Lasswell’s studies of propaganda during World War II, which led to his famous definition of communication as who says what, to whom via what channels, with what effect? (Lasswell, 1948). As a consequence, even today, “the theoretical diversity of political communication displays certain common themes, such as a lasting concern with effects”
Technology in/as Applied Communication Research

(E. M. Rogers, 2004, p. 3). Drawing on studies of rhetoric and persuasion, public opinion research and polling, journalism, speech and press law, and political science, political communication researchers have long considered mass media organizations (especially print and broadcast news and advertising) to be archetypal players and gatekeepers in setting political agendas and shaping public understanding of political issues and debates (Kaid, 2004; McNair, 2003). News organizations and political groups (e.g., political parties, movements, and community groups) alike traditionally have been organized as hierarchies intended to create and maintain control over the consistent presentation of campaign messages, issues, and candidates. Mass media have been seen as the ideal tool in this context, because they afford both centralized control and wide, consistent distribution of content.

McNair (2003, p. 4) justified the central focus on media campaigns and coverage, and the exclusion of interpersonal interaction and group/community communication (e.g., in the context of local government), because interpersonal and group processes are largely “hidden from the analyst”—that is, they are not recorded and distributed through conventional media channels. As a result, until recently, most political communication research, including that conducted by applied communication researchers, has tended to frame communication technologies mainly in terms of their relative effectiveness as carriers of political messages, such as in studies of ways that voters perceive and evaluate political advertising (McKinnon & Kaid, 1999), interests behind news coverage of controversies (Violanti, 1996), or how political candidates position themselves relative to others in televised debates (Doerfel & Marsh, 2003).

One important exception was a research project that examined the implementation of the Public Electronic Network (PEN), a public computer-messaging network available to anyone living or working in the city of Santa Monica, California, and that linked them directly with city officials (Dutton & Guthrie, 1991; O’Sullivan, 1995). Researchers found that PEN encouraged citizen queries and interaction, as well as prompt, personal responses and action from government officials. However, perhaps the most surprising finding was that PEN was adopted quickly and used by many in the community who were assumed to be unfamiliar or uncomfortable with computers and computer messaging, including women and homeless people who sought information about public services and employment opportunities online (Collins-Jarvis, 1993; Schmitz, Rogers, Phillips, & Paschal, 1995).

The PEN studies were significant on several counts. The project expanded the landscape of political communication research beyond the effects of mass media campaigns and news coverage on voters to include mediated interpersonal and group processes, and the role of new media technologies in grassroots political engagement and organizing at the community/local government level. In this respect, the PEN studies were an important predecessor to contemporary studies of e-Government (Layne & Lee, 2001; Moon, 2002). Vis-à-vis new media and communication technology research, the PEN studies constituted something of an intellectual bridge between the concepts of “information utilities” and “wired cities” advanced by technologists and urban planners in the 1970s and 1980s (Dutton, Blumler, & Kraemer, 1987; Light, 2003) and the online citizen movements and community networks that emerged in cities around the world in the 1990s with the introduction the Web and browsers (Tambini, 1999; Tsagarousianou, Tambini, & Bryan, 1998).

The rapid growth and use of new media technologies, especially the Internet, since the 1990s has begun to transform political communication, from e-Government and the mobilization of community groups to political campaigning and the shaping of public opinion. A Harris poll conducted in April 2005 showed that 44% of U.S. Internet users
read political blogs (“Two-Fifths of Americans Online,” 2005). Another study found that political blogs attracted nearly three times as many visits as any other category (comScore Networks, 2005). Statistics reported by the marketing firm ClickZ indicate that blog traffic spikes with major political news stories (McGann, 2004). In 2006, a study by the Pew Internet & American Life Project found that 53% of adult Internet users surveyed had sought political news and information online (Horrigan, 2006), up from 22% in 2002 (Raine, Cornfield, & Horrigan, 2005). The increase actually is more substantial than these figures indicate, because the proportion of U.S. adults using the Internet rose dramatically in the same period (Madden, 2006).

The relative low cost and potential global reach of new technologies also have fostered a recent renaissance of alternative and oppositional political commentary, engagement, and activism online (e.g., Lievrouw, 2006, 2007). Citizens, activists, and interest groups of both the left and right have adapted communication technologies to new forms of political engagement and advocacy (e.g., Atton, 2005; Chadwick & Howard, 2008; Dartnell, 2006; McCaughey & Ayers, 2003; Pickerill, 2003; Reber & Kim, 2006; Thomas, 2002; van de Donk, Loader, Nixon, & Rucht, 2004).

Despite this dramatic growth in online political information seeking, communication, and activism, however, observers continue to be divided about the significance of new media technologies for political communication. In their analysis of the implications of new media and the Internet for democracy, Jenkins and Thorburn (2003) listed several innovative uses of Web-based information in campaigns introduced in the 2000 U.S. national elections, but also cautioned that more profound changes in democratic participation and “informed citizenship” are likely to take much longer than many technology advocates predict. R. Rogers (2004) was less hesitant, arguing that the use of Web-based information resources, metrics, and indicators already has detached traditional, consensus-based methods of issue debate and deliberation in European nations from their strictly bounded geographic bases, a process he called “de-territorialization” (p. 59).

On the whole, it seems clear that political communication is undergoing a variety of changes in response to new communication technologies. Rainie et al. (2005) pointed out that 2004 “was a breakout year for the role of the Internet in politics” (p. 2). As Cornfield (2005) noted:

The internet has become an essential medium of American politics...because it can be used in multiple ways. Part deliberative town square, part raucous debating society, part research library, part instant news source, and part political comedy club, the internet connects voters to a wealth of content and commentary about politics. (p. 1)

The variety of metaphors in this quote suggests the extent to which political communication already has moved beyond the assumptions and conventions of the “mass.” The rapid proliferation of online information and interaction genres (blogs, mobs, social network sites, etc.) have complicated the efforts of political campaigns to control the distribution and reception of their messages, as demonstrated by the unsuccessful 2006 campaigns of Senator George Allen (R-Virginia) and U.S. Representative and Senate candidate Harold E. Ford, Jr. (D-Tennessee). The discipline and structure of hierarchical campaign organizations have been challenged by grassroots counterorganizing using meet-ups and social network software. Reliance on expensive and relatively scarce media outlets, although still critical for generating awareness and interest among general audiences, cannot target more engaged and activist voters as effectively as can specialized Web-based sources. Polling and other basic forms of feedback still are essential, but
voters and constituents are demanding more frequent and direct access to candidates and campaigns, posing questions and critiquing campaign messages and claims.

**Technology and Instructional Communication**

The use of communication technology in education is as old as pedagogy itself: demonstration props and models; pens and paper; chalkboards, maps, and books; rulers and scales; film and slides; video and calculators; and laptops and Wikipedia all have been enlisted at one time or another to enrich instruction. In U.S. education today, at every level from preschool to higher and continuing education, communication technologies are a routine part of teaching and learning.

However, as in the contexts of health care and politics, in instructional communication research, technology has been viewed as a more or less ancillary tool, secondary to the more basic, or “real,” interactional processes of teaching and learning, when it has been considered at all. For example, a recent historical overview of “the scholarship of teaching and learning” within the communication discipline makes no reference to the role of media or communication technologies in instruction (McCroskey, Richmond, & McCroskey, 2002). In a comprehensive review of 186 studies of instructional and developmental communication published in communication journals between 1990 and 1999, Waldeck, Kearney, and Plax (2001) found that just 19 studies investigated the uses or perceptions of technology—usually television—in pedagogy. (In comparison, 27 studies dealt with the effects of mass media on children.) Even in studies where communication technology or media have been taken into account, the great majority have been concerned primarily with the effects of media content or teacher communicative behavior via technological channels (Henrickson, 1996; Waldeck, Kearney, & Plax, 2000). Technology rarely is considered as a fully integrated aspect of instruction for teachers and students alike, even though ICTs have become an essential part of schooling over the last 2 decades. This omission has prompted some scholars to call for more attention to the question of technology in instruction (Nussbaum & Friedrich, 2005; Waldeck et al., 2001).

Instructional communication researchers may find a model in studies of distance education, especially in higher education—one area of educational research where communication technologies have taken center stage in recent years. Although distance education has a long history (from “first-generation” correspondence courses offered through postal mail to “second-generation” telecourses using broadcasting and telephone links to today’s “third-generation” multimedia instruction; Rumble, 2001), it has undergone an unprecedented burst of growth over the last decade in parallel with the rapid growth of the Internet.

According to data compiled by the U.S. Department of Education’s National Center for Educational Statistics (NCES; “The Condition of Education,” 2006), the percentage of all U.S. 2- and 4-year institutions of higher education offering distance education courses rose from 33% in 1995 to 62% in 2004–2005 (Greene & Meek, 1998; Lewis, Snow, Farris, & Levin, 1999; Tabs, 2003). The predominant technologies used by the institutions surveyed by the NCES are the Internet (mainly in asynchronous applications, such as Web sites or discussion boards) and one- and two-way video, often with two-way audio links.

It is unsurprising that so many institutions have moved so quickly to use new media to extend their reach. Colleges and universities played a central role in the development of most contemporary ICTs, and have decades of experience using older technologies, such as broadcasting and film, in undergraduate, graduate, extension, and professional education. Even schools with relatively little distance or extension education experience
have undertaken new initiatives, on the assumption that distance education is a relatively low-cost way to reach new students and generate additional revenue, particularly among public institutions that are experiencing declining government support.

However, the expense of designing, supporting, and maintaining distance education courses and programs, and the associated technological infrastructure, is substantial. Most analysts agree that mediated learning is more expensive to develop and offer than face-to-face instruction in almost every respect (e.g., development and teaching time, technology expense, institutional overhead and administration, increased faculty workload, evaluation procedures, and course “shelf life” and updating; Rumble, 2001). The picture is further complicated by an extensive body of research indicating that student learning is no better using mediated instruction than more basic face-to-face instruction (e.g., Clark, 1983; Russell, 2001). In fact, cost appears to be an important factor for institutions that have chosen not to offer distance education opportunities, which comprised 42% of all U.S. higher education institutions in 1995 and 31% in 2000–2001 (National Center for Educational Statistics, 2006).

Despite the costs, institutions are likely to continue investing in distance education and the communication technologies to support it, not least because of increasing student demand for courses and degrees that fit their schedules, do not require physical attendance, provide greater access to learning materials online, and permit interaction with instructors at students’ convenience. Certainly, “live” lectures and seminars—classic forms of instruction that employ linear styles of presentation and reception of content; hierarchical forms of student–teacher relations, course organization, and management; and are limited in availability—still are alive and well in higher education. Increasingly, however, they are being complemented by extensive digital libraries and information services that link students and faculty to diverse networks of print and digital resources far beyond those owned by the home campus. Course-management systems, real-time conferencing and chat facilities, podcasting and virtual classrooms and libraries (such as those recently established in SecondLife by a number of prestigious U.S. universities), online testing and feedback, and a range of other technologically mediated materials and services that link students and faculty to diverse networks of print and digital resources far beyond those owned by the home campus. Course-management systems, real-time conferencing and chat facilities, podcasting and virtual classrooms and libraries (such as those recently established in SecondLife by a number of prestigious U.S. universities), online testing and feedback, and a range of other technologically mediated materials and services have altered the processes of teaching and learning. Virtually all of the typical student’s interactions or encounters with administrative services, such as admissions, enrollment, financial transactions, and grading, now are conducted via the Internet. Higher education in the United States and other affluent countries today is intensely mediated—pedagogy and technology are inseparable parts of the experience.

Implications of Technology in/as Applied Communication Research

Earlier in this chapter, I outlined two perspectives on communication technology that have developed within the communication discipline over time. I suggested that the instrumental focus on channels and effects that characterized classical mass communication research (and which, in many ways, demarcated media research from speech and interpersonal communication studies) contrasts with the mediation perspective that has evolved among analysts of new media and communication technology (the main points are summarized in Table 10.1). Mediation considers communicative action, cultural context, and material resources (especially technology) not as independent phenomena but as inextricable, codetermining aspects of sociality, interaction, expression, and meaning.

A general implication of this dichotomy is that the instrumentalist view suggests that practices, tools, and technologies exist, in a sense, within the setting in question (e.g., patient history databases within primary care medicine, computer-supported coopera-
tive work within bureaucratic organizations, televised debates or Web-based fund-raising within political campaigns, or distance education courses within higher education). In essence, social contexts are treated as “containers” for events, actions, or resources. This is a familiar duality in social science: action within structure, content within form, micro within macro. In the study of communication, this idea has been manifested in conduit and transmission metaphors extending back from recent descriptions of media technologies and information systems (e.g., Day, 2000; Sawhney, 1996) to the classic SMCR model of communication to studies that cast writing and even language itself as containers for meaning (Goody, 1981; Reddy, 1993). This perspective, thus, situates technology in communication, and communication within social context.

From the mediation perspective, however, social contexts are not merely stages or containers for events, practices, and resources. Rather, social and technological action and structure comprise whole environments that are continuously enacted, inscribed, broken down, recreated, and made meaningful by people in the course of everyday life and interaction. To use Callon’s (1986) term, communication and context can be thought of as an ensemble that involves technologies, practices, and social arrangements together. Put differently, the mediation perspective resituates technology as communication, and communication as inseparable from social context.

The pragmatic orientation of applied communication research aligns with the technology-in-communication perspective, as such research often regards not only technology per se but also communication itself as instrumental, and emphasizes the “utility of the [research] work for ameliorating communication-related problems” (Seibold, 2000, p. 184). The mission of applied communication research, thus, is to employ effective communication techniques to solve problems or achieve goals in particular social contexts, to “make a difference” (Kreps, Frey, & O’Hair, 1991). Similar to action research in other disciplines (e.g., Lather, 1986; Wildavsky, 1987), some applied communication scholars have advocated a stance of praxis, in which research constitutes intervention in problematic or unjust situations, as well as scholarly investigation (Eadie, 1994; Frey, 2000; Frey, Pearce, Pollock, Artz, & Murphy, 1996; Seibold, 1995; see also Frey & SunWolf, this volume). The focus on utility, intervention, and problem solving all seem to place communication and communication technology as tools or resources to be deployed as needed within particular settings.

However, as the preceding discussion suggests, in applied communication research, as in the communication discipline at large, the steady integration of communication technologies into ever more aspects of everyday life, work, and leisure has prompted analysts to reframe their research questions, reconceptualize empirical studies, and develop new theories (at least implicitly), in light of the blurring boundaries between communication processes and media technologies. I suggest two particular implications of these shifts for applied communication research.

The first implication is that by adopting the mediation perspective, applied communication researchers may be better positioned to develop robust theories that are generalizable across social settings rather than specific to one setting or another. For example, adaptive structuration theory (AST), mentioned earlier in this chapter, considers structure and action, and communication processes and technologies, to be mutually determining. Although AST originally was developed to explain the uses of group decision support systems in formal business organizations, it clearly is applicable to many other forms of mediated social organization and interaction beyond the workplace. Similarly, online social support groups, the focus of so much recent interest among health communication researchers, may serve as useful models for understanding mediated small group processes more broadly, in contexts ranging from new social movements and political
mobilization to scientific or artistic collaborations to the evolution of national, linguistic, or cultural diasporic communities around the globe.

A second implication is the potential empirical and theoretical value of adopting a network view of the multilayered communication relationships among people, systems, and social formations in social settings. For example, the distinction between interpersonal and group processes and that of media campaigns in health communication, and the difficulty of crossing this “micro–macro” divide, both analytically and practically, might be resolved by thinking about communication in terms of network relations and dynamics. Rather than categorizing communication processes according to whether they are technologically mediated or not, or how many people are involved, some researchers already have begun to look at the junctures and articulations between people’s personal networks and how they access, use, and share health information and ideas via the media, popular culture, and the Internet. Communication researchers today understand that there is no single formula or “magic bullet” that ensures effective communication; a variety of elements must be taken into account to understand the whole experience of expression, influence, persuasion, and action. The network approach, as a tool for observing and analyzing complex social systems and action, is already widely used in organizational communication studies and is a promising way ahead in other arenas of applied communication research as well.

Conclusion

It may be useful to keep in mind the multiple meanings of the word mediation itself. It is an important concept for the study of communication, not only because it relates to the means or channels of expression but also because it suggests processes of moderation, negotiation, or bringing together. Both aspects are necessary conditions for communication and shared meaning. The shift from seeing technology-in-communication to seeing technology-as-communication, and the mediation perspective, more generally, finally may bridge (indeed, mediate) some of the discipline’s divides, and perhaps even serve as a new point of departure for applied communication scholarship in this new century.

Notes

1. SMCR still is reproduced in many introductory textbooks as a foundational theory of communication, despite numerous critics’ objections that it is better suited to its original application in telephone systems than to the study of human communication (e.g., R. Campbell, Martin, & Fabos, 2006; Straubhaar & LaRose, 2006).

2. My use of the term double materiality to characterize communication technologies differs slightly from that of Brügger (2002). In a critique of James Slevin’s (2000) book, The Internet and Society, Brügger argued that the material aspect of the Internet encompasses both the physical objects built into the system and the “immaterial materiality” of the energy used to represent symbols in the form of data, software, or representations. My definition, like Brügger’s, contends that the two elements in question exist in a dialectical relationship; however, I focus on both systems and content as material artifacts rather than on system elements alone. My conception also differs in emphasis from “double articulation” as elaborated by Silverstone (1994; Silverstone & Haddon, 1996), which distinguishes between media as technological objects and as textual representations, but frames both as mechanisms of consumption, particularly in domestic settings (see also Livingstone, 2007).

3. Over time, the language used to describe participants in health communication frequently has shifted. What once routinely was characterized as the “doctor–patient” relationship more recently has become the “provider–patient” relationship (to recognize that physicians are not
the only professionals involved), “provider–consumer,” or “provider–client” relationship (to avoid reducing those seeking care to the single, medicalized, and often-stigmatized “patient” role). All of these formulations are problematic in some way. “Consumer” suggests active participation (Cline, 2003; Street, 2003), but also frames health care as a market relationship characterized by rational choice. Client seems more neutral, but the term also suggests that the seeker of services sets the terms of the relationship, or acts as the provider’s employer, which certainly is not the case in third-party payer systems. Moreover, all of the terms depict communication as a dyadic, interpersonal interchange, although most health communication contexts are far more complex and involve more than two people (Eggly et al., 2006). I use a mix of all these terms (as do several of the other writers cited here) to suggest the complexity of players and roles.

4. The present discussion is limited to instructional communication—the study and application of communication techniques across diverse instructional settings and pedagogies. It is distinct from the closely allied specialties of developmental communication and communication education (McCroskey et al., 2002; Nussbaum & Friedrich, 2005; Waldeck, Kearney, & Plax, 2001; see also Darling & Leckie, this volume).

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