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Beverly Hills, California 90212

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New Delhi 110 024, India

SAGE Publications Ltd
28 Banner Street
London EC1Y 8QE, England

Printed in the United States of America

**Library of Congress Cataloging in Publication Data**

Main entry under title:

The new media.

1. Mass media—Research. 2. Mass media—Technological innovations. I. Rice, Ronald E.
P91.3.N49 1984 001.51 84-3287
ISBN 0-8039-2271-X
ISBN 0-8039-2272-8 (pbk.)

FIRST PRINTING

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# 3 Theories Old and New: *The Study of New Media*

"New media" is used in this book to refer to a broad class of recently available communication technologies. However, as Chapter 1 emphasized, these media are new only to the generation first experiencing them, and indeed they may be viewed in light of theoretic and empirical work associated with more "traditional" media. That is one of the main points of this chapter: We need not jettison useful communication theories when we wish to understand the new media. Indeed, the new media provide fertile test beds for many of our theories and models.

However, we also argue that we should take advantage of the communication behaviors and social contexts associated with the new media to further specify and modify those theories. Several sections pointedly review theories developed during the rise of the mass media, by questioning their complete applicability to new uses and users. Finally, we

argue that we may have to not only rethink current communication theories but, indeed, borrow from other disciplines and even construct new concepts and theories. This process is one area in which communication researchers may take the lead, as suggested at the end of Chapter 1. On the other hand, we cannot ignore the new questions and challenges the new media put to old theories.

The chapter considers such issues at three levels of analysis: the interpersonal, the organizational, and the institutional. Some of the topics introduced here are discussed more fully in separate chapters. Finally, the assumptions *behind* such theorizing—theories *about* theories of use and impacts—are briefly summarized. That section is intended to raise questions about the biases, ideological concepts, and analytical constraints that are associated with specific theoretical perspectives.

## ON THE PERSONAL QUALITIES OF NEW MEDIA

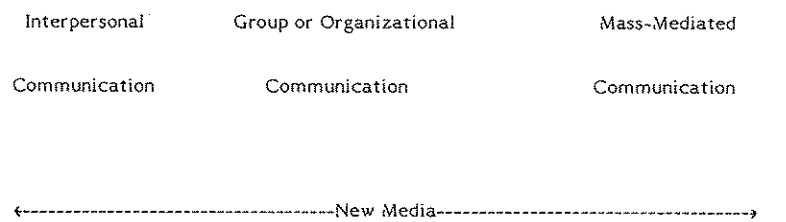
The new media loosen the constraints of traditional media, yet allow the use of combinations of attributes of each of those media. Indeed, we are able to talk about certain functional characteristics of new media with which communication research is already familiar. New media, like previous media, are basically extensions of human senses and effectors. In fact, some of the distinctions between the new media and traditional media are not as discontinuous as are the distinctions between traditional media and natural media such as hearing, seeing, and speaking.

The fundamental interactivity of new media was discussed in Chapter Two. Because the new media are interactive and may be used in a variety of new situations—flexible interpersonal communication (for example, through electronic mail), group communication (through video conferencing), and private use of public information (through videotex)—the discrete distinction between interpersonal communication and mass-mediated communication is giving way to a continuum of communication behaviors. Figure 3.1 shows this continuum.

With traditional communication media, there was often a visible distinction between sources of personalized communication and impersonalized information. If individuals wanted to learn more from one another or to affect one another's behaviors, they engaged in an unmediated interactive situation, where nuances and responses would arise quickly, based upon questions or statements as well as the nonverbal channel. That sort of personalized instruction or information is not fully possible from traditional television or newspapers. However, it is no longer available only from unmediated conversation. Sources of satisfaction for personal communication needs are no longer limited to face-to-face contexts, traditional mail, or the telephone. Perhaps the new media highlight the fact that although satisfaction of individual needs was inherently *possible* through most traditional media, as long as media were marketed to mass audiences, interactivity was typically *unlikely*. One implication is that theories involving media uses and needs satisfactions



FIGURE 3.1 New Media Create a Continuum Between Formerly Discrete Categories of Interpersonal and Mass-Mediated Communication




should be expanded to accommodate the ability of certain new media to satisfy different as well as more traditional interpersonal needs.

One of the issues on the personal level of communication is that the new media are often claimed to be impersonal or to depersonalize relationships among users. Yet, research into the subjective qualities of media and of their uses and gratifications indicates that these effects may be as much a consequence of our restricted use of a medium as of the physical restrictions a given technology may impose. In this section we first survey some of the concepts advanced by Short, Williams, and Christie (1976) in their monograph, *The Social Psychology of Telecommunications*, then add a few notes about the interaction of media "personalness" and uses and gratifications.

### The Social Presence of a Communication Medium

How does one sense that an act of communication is "person oriented" or that the message conveys some of the person's "presence"? This personal or social differentiating quality of communication acts is what Short et al. have stressed in the study of the psychological aspects of using telecommunications media. They call it *social presence.* It is reflected in how a participant in a communication exchange would fill in such semantic differential scales as "unsociable-sociable," "insensitive-sensitive," "cold-warm," and "impersonal-personal" when evaluating the medium used. The mean score of the summed scales represents to what extent the medium is considered to convey social presence. Short et al. and Albertson (1980) provide more details on these scales.

You might expect that a business letter would typically have less social presence than a face-to-face conversation. Indeed, studies have shown this. Table 3.1 provides one such set of ratings of perceived social presence.

Chief among the reasons given for the differentiation among media in social presence are the stimulus-conveying restrictions of some media compared with others.The most salient restrictions are those related to the conveyance of the *nonverbal* aspects of communication. For example, the telephone cannot convey the proxemic (physical distance and placement) and kinesic (gestures and facial expressions) dimensions of a personal conversation.

Precisely because the telephone is lower in social presence than face-to-face communication, people are less easily deceived by other communicants and are able to make more accurate evaluations of others' information via the telephone. This decrease in visual cues and physical proximity may lessen negative feelings in negotiating over the phone. People seem to feel more effective in their dealing with others, and participation is more equal. Muson (1982) argues that most speaker cues are verbal anyway, so the phone increases their effect. But a combined audio and television link can allow the exchange of many nonverbal cues (see Chapter 9).

Short et al. (1976) and Johansen (1977) exhaustively review the research on comparisons among communication channels such as face-to-face, telephone, and audio/computer/video conferencing. (See also Dutton, Fulk, and Steinfield, 1982; Fowler and Wackerbarth, 1980; Johansen, 1977; Johansen, Vallee, and Spangler, 1979; Krueger and Chapanis, 1980; Muson, 1982; Reid, 1977; Strickland, Guild, Barefoot, and Patterson, 1978; and Williams, 1978.) Generally, these studies indicated that teleconferencing, for example, was accepted and effective for tasks involving information exchange, routine decision making, or cooperative problem solving (low social presence tasks); but it is not as good for getting to know people, bargaining and negotiation, and tasks involving serious conflict (high social presence tasks) (Champness, 1973: Noll 1977; Thorngren, 1977; Tyler, Katsoulis, and Cook, 1976; Williams, 1978).

**TABLE 3.1 Social Presence Ratings of Five Media**

| *Communication Mode* | *Social Presence*[a] |
|---|---|
| Face-to-Face | 0.81 |
| Television | 0.24 |
| Multispeaker audio | -0.18 |
| Telephone audio | -0.52 |
| Business letter | -0.85 |

SOURCE: Short, et al. (1976:71).
a. Social presence index ranges between +0.9 and –0.9.



Table 3.2 shows how organizational members rated the appropriateness of electronic mail for a variety of tasks typically performed in business activities (Rice and Case, 1983). These tasks and the questions were the same as those developed and used by Short et al.

In general, respondents felt that electronic mail was most appropriate for the kinds of tasks requiring less social interaction and less social intimacy. Note, however, that some tasks (generating ideas, decision making, resolving disagreements, and bargaining) do not seem inappropriate to experienced computer users as they do to the casual, novice, or nontechnical user. Thus, one's social or organizational role and task context affect the perceived social presence or appropriateness of the medium used.

We also suggest that the amount and type of channel *redundancy* may affect the appropriateness and effectiveness of a medium. That is, highly interpersonal relationships entail kinds of uncertainty that can be reduced only by sufficient amounts of redundancy provided by nonverbal (proxemic and kinesic) information, or simply more redundancy within a single channel. For example, the spoken language provides more ongoing redundancy and contextualization than textual language, so the telephone is perceived as more appropriate than a letter, for many social activities.

Two further qualities of a medium are also particularly relevant to social presence—the potential for interactivity and the privacy-versus-public quality of the medium. The former is simply the potential for immediate, two-way exchanges. Feedback facilitates an ongoing regulation

**TABLE 3.2 Appropriateness of Electronic Mail for Various Tasks**

| | *Percentage Responding "Appropriate"*[a] | |
|---|---|---|
| *Task* | *Manager*[b] | *Computer Personnel* |
| Exchanging Information | 100.0% | 97.0% |
| Asking Questions | 95.0 | 100.0 |
| Exchanging Opinions | 81.0 | 95.5 |
| Staying in Touch | 84.1 | 89.1 |
| Generating Ideas | 73.0 | 89.1 |
| Decision-Making | 46.7 | 64.5 |
| Exchanging Confidential Information | 30.0 | 39.4 |
| Resolving Disagreements | 15.3 | 35.6 |
| Bargaining/Negotiating | 18.0 | 32.3 |

a. Bipolar scale. Average N = 62; range N = 55 to 66. The most conservative and global 95% confidence interval for between-task and across-personnel comparisons is equal to 1.96 times the square root of (.5x.5)/62. Thus, percentages differing by more than 12.4% are significant.

b. Measured at two to five months after first usage of electronic mail. By t-tests, there were no significant differences in managers' responses between this time 2 period and time 1, shortly after first use. Computer personnel responses were collected only at time 2.

and cueing of a communication interaction. The privacy or public aspect of a medium refers to the individual's consciousness of whether "outside" individuals may be able to monitor an exchange. The less privacy, the less potential for communication to become personalized and, hence, the lower the social presence.

One additional consideration is that the *context* in which we choose a medium may itself affect attitudes about social presence. For example, a written note between two individuals might be taken as low in social presence if one had rejected the opportunity to speak to the other personally, but may be rated high if it is a love letter mailed across the country.

Several media-related factors are critical for interpersonal communication. For example, the nonverbal code weighs heavily in this process and any restrictions upon its exchange, when such codes provide information important to, or about, the communication, are apt to make communication more impersonal. Also, the movement of communicative interactions from impersonal to personal levels benefits according to the potential for interaction. Further, if others are eavesdropping on a conversation, it is likely to be less personal. Finally, movement to a personal level of exchange is not likely to be encouraged if it begins with the other person's intentionally choosing a less personal medium of communication.

This reasoning is consonant with contemporary theory in interpersonal communication (e.g., Miller, 1976, 1978; Miller and Steinberg, 1975). In general, interpersonal communication evolves from communication based upon cultural or social stereotypes to a mutual focus upon individuals. This necessitates a gathering of "personal information" in the context.

The importance of social presence may be heightened when other media are competing for the user's attentions, or when a specific individual is being singled out from a group for communication (Williams, Paul, and Ogilvie, 1957). Conversely, decreased social presence may facilitate the learning of novel tasks, as there would be less interference due to heightened arousal (Goleman, 1983). This again reinforces both the contextual and interpersonal aspects of social presence.

The point of all this is that in choosing our alternatives among the new technologies—e.g., electronic messaging over voice telephone, teleconferencing over face-to-face meeting—there is a dual consideration of both technical and contextual restrictions of a medium (reflected in its ability to convey social presence) as well as our willingness to overcome those restrictions by persuasive and stylistic strategies. Indeed, Hiemstra (1982), by analyzing the interaction sequences and content of a computer conference, found that most of the forms of the very interpersonal process of "saving face" were maintained even in this text-based communication medium.

We must also take into account the perceptual sets that others may have when they are invited to communicate using a particular medium. An individual may have received so many impersonal telex messages that even if a sender employed a variety of personal stylistic devices, they might be overlooked because no personal communication is expected. (This is akin



to parents' complaining about the use of instructional television in schools on the belief that nothing serious can be learned from a "light entertainment" medium.)

In all, if we are to consider the personalness (or potential "depersonalization") of alternative technologies of communication, we might consider more specifically the concept of social presence. If we require that mediated communication be able to operate at the interpersonal level for motivation or conflict resolution, we will want to select a medium with high social presence and capitalize on it in our message formulations. If we are technically restricted—as when a teleconference is audio only—then we may want to put a special emphasis upon stylistic and persuasive strategies that increase social presence. At the other extreme, if our communication does not particularly require social presence, as in a purely informational exchange or simple direction-giving, there may be no need to invest in expensive technologies for purposes of obtaining it. For example, if the members of an organization have a need to coordinate their calendars, a modest shared computer file (as a "computer conference") might be far superior to face-to-face meetings (see Hiltz and Turoff, 1978; Rice, 1980b; Short et al., 1976). These considerations are just a few components of a more complete understanding of how people seek, need, use, and exchange information (Dervin, 1981; Taylor, 1982).

The social presence theory is not without difficulties, however. First, in an effort to isolate any medium effects, some social presence research was conducted in laboratory settings, using simulated tasks and "unrepresentative" ad hoc groups. This limits the research's generalizability to actual "business conditions" where other factors associated with the medium may be far more instrumental in determining acceptance and use. Steinfield (1983), for example, shows that many uses of organizational electronic mail are for routine and highly social activities that fall outside those functional, business meeting tasks identified by Short et al.

Second, social presence is at best a vague concept, never clearly defined by its proponents. Social presence is typically marked by such adjectives as "sociable, sensitive, warm, and personal," yet is never explicitly operationalized.

Third, some research results question the influence of "social presence" in specific situations. Although Irving (1981) found greater use of oral channels for activities rated "intermediate" on social presence, telephone was ranked higher than was face-to-face (p. 96). Irving also found that distance effects seemed to override social presence influences in his study (p. 104). Other activity/media relations also appear unrelated or contrary to the social presence notion. Rosenbloom and Wolek (1970) demonstrated that researchers typically used oral channels for acquiring research information and written means for assessing and evaluating results (p. 49) a finding that seems more related to the permanence of written communications than to any variation in social presence. Goddard's (1973) results go directly against the social presence model, showing the high social presence activity of bargaining was accompanied by substantial use of the telephone. Dormois, Fioux, and Gensollen (1978)

demonstrated that written communication was often a follow-up to prior oral exchange, such that high social presence activities (e.g., negotiating) can and often did result in a heavy paper flow. Ruchinskas (1982) also showed a positive relationship between negotiation and use of the telephone. The most comprehensive review of media comparisons involving the telephone (Reid, 1977), concluded that the very small incremental effect of the visual channel (face-to-face or video) over the audio channel (telephone) indicated that there actually may be little effect of social presence at all.

Thus, we must reserve judgment upon the adequacy or universality of this theory until we can develop an explicit operationalization and an understanding of the social, organizational and task attributes specifying the nature of social presence.

### Personalness, Uses and Gratifications, and Other Attitudinal Dimensions

Looking at attitudes toward and use of media from a wider perspective than social presence theory further illuminates the contextual nature of media. Two reports of ongoing studies in the attitudinal correlates of communications technologies offer evidence of the distinction of personalness as well as other attitudinal dimensions. In one study (Williams, Phillips, and Lum, 1982), twelve different media were rated by 68 university students according to their importance for fulfilling 35 of the "media-related needs" as defined in an earlier study by Katz and his colleagues (Blumler and Katz, 1974; Katz, Gurevitch, and Hass, 1973) of uses and gratifications. As would be expected, very self-oriented or personal needs that were rated to be important to the student (e.g., "to know myself," "to participate in discussions with my friends," "to participate in the experience of other people") were all highly associated with face-to-face communication. Items that would less likely require a quality of social presence in communication ("to understand what goes on in the United States," "to get to know the true quality of our leaders," "to know what the world thinks about the United States") were associated much more with mass media (newspapers, broadcast television) than with more intimate forms of communication. The respondents related videotape and cable television to such needs as "to be entertained" or "to escape from the reality of everyday life."

Although these findings can be considered commonplace, it was of interest to the researchers to see how certain other media would be differentiated according to these needs. Particularly visible in the results was how the telephone elicited responses markedly in accordance with most person-centered needs that might benefit from a medium high in social presence. For example, use of the telephone was most highly related to the need "to spend time with friends." This is in contrast to the generalizations of Short et al., who saw the telephone as a somewhat impersonal medium when used in business communication (as it often is).



We mention this finding not so much as evidence of attitudes of certain groups, but as evidence that we can probably assume that social presence as associated with the telephone is probably far more a function of context and needs gratifications than it is a quality of the medium. (It is ironic, we think, that although the telephone has now been with us for a century, with the exception of the research referenced in Pool's work [1977, 1982a] and that by Short and colleagues, the serious study of the telephone has been largely overlooked in communication or social psychological circles.)

Although Williams et al. acknowledge theoretical shortcomings of the uses and gratifications categories, the results of this study do point out considerable emphasis upon personalness in rating the importance of needs.

The second study (Phillips, 1982) also provided evidence of the importance of personalness in differentiating among media or communication technologies but also suggested the relevance of certain other attitudinal dimensions. In this research 60 university students' discussions of media were content-analyzed for adjectives that were subsequently the basis for a 37-scale 7-point semantic differential instrument. Then 128 students evaluated 7 media on these scales: radio, broadcasting television, cable television, newspapers, video cassette recorders, the telephone, and home computers.

A subsequent multiple discriminant analysis yielded three main functions that were subjectively labeled as (a) familiarity, (b) importance, and (c) personalness. The discrimination of those media on each of the three functions can be seen in the centroid values given in Table 3.3.

The first point to note is that unlike the findings by Short et al., subjective qualities of familiarity and importance preceded personalness as discriminating attitudinal dimensions among the different media. Although these results, due to methodological and respondent differences,

**TABLE 3.3 Media Functions as Portrayed by Multiple Discriminant Analysis**

| *Medium* | *Familiarity*[a] | *Importance* | *Personalness* |
|---|---|---|---|
| Radio | 1.33[b] | -.34 | -.07 |
| Broadcast Television | .57 | -.55 | -.47 |
| Cable Television | -1.09 | -.12 | .07 |
| Newspaper | 1.98 | .42 | -.90 |
| Video Cassette Recorder | -1.66 | -1.05 | .27 |
| Telephone | .97 | .84 | 1.64 |
| Computers | -2.08 | 1.92 | -.49 |

SOURCE: Phillips (1983).

a. "Familiarity" comprised inexpensive, old, and common. "Importance" comprised important, time-saving, and necessary. "Personalness" comprised personal and private.

b. Centroids; positive values are in the direction of the function labels. Wilks's stepwise selection method used. Three functions accounted for 88% of variance.

are not directly comparable with the preceding study, we suggest that the subjective correlates of media have more of a multidimensional quality than was stressed in the earlier research. Distinctions in terms of familiarity were what most researchers would expect; for example, newspapers are maximally distinguished from computers. Yet despite their unfamiliarity, computers, as shown in terms of Function 2 are rated as more *important* than newspapers. Further, on this function newer media such as video cassette or cable TV are relatively unimportant. Finally, in terms of personalness, the telephone again is highly rated, with newspapers rated impersonal. Plotting the centroids with respect to the orthogonal functions shows the telephone and newspapers to be perceived as inexpensive, common, and serious; or television radio and newspapers as familiar, impersonal, and public.

As a summary, we might point to the analysis of eight media from the uses and gratifications perspective by Lometti, Reeves, and Bybee (1977). This is one of the most straightforward and explicit analyses of media functions from the "uses and grats" literature. The primary theme of their research was, what exactly are the dimensions of gratification? Naturally, the authors could not answer whether the dimensions related to the *content* typically associated with a given channel or to specific *attributes* of that channel. This is a critical topic for communication research.

From their review of gratification dimensions suggested or tested by previous researchers, and from a thoughtful discussion of the drawbacks in that research, Lometti et al. scaled nine potentially salient gratifications with respect to eight communication sources (books, family, film, friends, magazines, newspapers, radio, and television). The questionnaire included a variety of univariate measures for each medium, to further identify the resultant dimensions. Subjects were 117 middle school, 135 high school, and 200 college students, probabilistically sampled. Three-way multidimensional scaling (INDSCAL) revealed three dimensions, which explained 95% of the variance. In order of decreasing variance, they were (a) surveillance/entertainment, (b) affective guidance, and (c) behavioral guidance. The behavioral guidance dimension primarily comprised the specific behavioral guidance variable as well as "companionship" and "factual information." Interpersonal sources were located high on this dimension; radio and television were located low. The surveillance dimension comprised factual information (very strongly), and (negatively) "excitement," companionship, and "substitute companionship." Print media were located high on this dimension; interpersonal and electronic media were located low. In general, interpersonal, electronic, and print media were located low. In general, interpersonal, electronic, and print communication sources tended to cluster in similar locations across the three dimensions.

Although all three subject subgroups produced the same three dimensions and discriminated equally well among them, they attributed changing salience to the three dimensions. The first dimension decreased in salience as age increased; the third increased; and the second showed little change. For the purposes of the discussion in this section, we might argue that our preliminary results can be accommodated within Lometti et al.'s framework. Personalness can be interpreted as affective as well as behavioral guidance. While the typically one-way mass media of radio and TV are negatively, if at all, related to the more personal dimensions, electronic (but mass) media co-locate with interpersonal sources on the entertainment end of the surveillance dimension, as opposed to the print media. We would hypothesize that were the telephone and the more interactive new media included in Lometti et al.'s study, they would cross some of the dimensional poles, and co-locate with the interpersonal sources on one or both of the personal dimensions.



## Communicating Through or With New Media?

Hewes (1983) wonders whether some new media, such as computers, are indeed media, in that we do not really communicate with another person when using them. This demurral would apply to programming, videotex, online delphi analysis, interactive cable, and the like. Specifically, his comments imply that we communicate with the original system designers, programmers, and data-base indexers when we use such new media. This is, of course, a crucial and raging controversy in the fields of information processing, learning theory, artificial intelligence, cognitive psychology, and computer science. The question is, do we actually "communicate" with computers? This topic is a bit of a red herring for our purposes: Insofar as we view new media as facilitating interactive (but mediated) communication for instrumental as well as entertainment purposes, this very important philosophical question may be kept in the wings. We mention here only a few aspects of the question, which may provide opportunities for communication researchers to contribute to the debate.

The co-orientation model of communication posits that we build models of another person, and of ourselves, as we exchange information and evaluate each other's responses (McLeod and Chaffee, 1973). This approach is quite similar to the results of an analysis by McGuire and Stanley (1972), which found the same communication patterns in person-to-person interactions as in person-to-computer interactions. In general, commercial computers do not build up a model of the user, although operational artificial intelligence systems are able to parse the logic in users' interactions with the system, "learn" about users' knowledge and experience with the system, and provide guidance for further use. But this co-orientation modeling is similar to the "mental model" theory of human-technology interaction. This theory posits that humans, no matter their level of experience, develop images that lead to a "conceptual representation of a device which is used in interacting with that device" (Borgman, 1982). This mental model may be at the heart of actual use of information systems, particularly retrieval systems. The "conversation" that a user has in such interactions may be analyzed in ways quite similar to how interpersonal conversations develop, change, and are maintained. Indeed, one of the very first evaluations of information retrieval behavior

(Penniman, 1975) was heavily based upon conversational sequencing research by Jaffe and Feldstein (1970) and continued by Cappella (1980). The data for both studies are conceptually similar and may be provided and analyzed automatically (see Chapter 4 and Rice and Borgman, 1983). An integrated theory of communicative interaction may profit by research at the interface of these various disciplines.

## Videogames: Entertainment, Interaction, and Computer Literacy

Another opportunity to consider social dimensions of new media is in the area of entertainment. Except for a few authors, this topic has generally been ignored by communication researchers (Mendelsohn, 1966; Stephenson, 1967; Tannenbaum, 1980; see also Chapter 5 of this volume). This oversight is particularly glaring given that "most people use most media most of the time for entertainment" (Comstock, Chaffee, Katzman, McCombs, and Roberts, 1978; Roberts and Bachen, 1981). Videogames offer an opportunity to study significant cultural aspects of communication as they involve symbolic, mythic, social, and entertainment elements. Videogame arcade users spent $5 billion in 1981, equal to the Las Vegas take combined with the gross of the U.S. film industry, or equal to three times the combined TV revenues and gate receipts of major league baseball, basketball, and football. This figure rose to $7 billion in 1982, or greater than the combined revenues of the movie and record industries. Videogame parlors reached a peak of 10,000 in the United States in 1982, but 2,000 closed in 1983 due to slackening demand (Time, 1983b). The installed base of home videogames, in millions, has risen during 1977 through 1982 from .35, .80, 1.63, 2.95, 7.45, to 14 million (Yankee Group figures). Home penetration percentages range from 9% (Nielsen, 1982a) to 14.8% (Media Science, 1983). Compared to 51 hours, 37 minutes per week of TV viewing, Nielsen's July 1982 NTI sample report playing videogames 24 minutes per week.

Videogames not only provide instant public status (for a select subculture) but offer very public, interactive experiences. Observers wait in line, kibbitz, offer support, and feel intimately part of the experience of the performer-of-the-moment. This is more intimate than hockey fans shouting at players, and more active than a family watching television. Videogames offer public communication situations that are participatory.

The few available studies of videogame use indicate a number of themes that are familiar to researchers in interpersonal and televised communication. The first is that by far the primary reason for playing videogames is fun and entertainment (57% of all responses from a nonprobability sample of 200 arcade players, normalizing for multiple responses, reported by Schwartz, 1982). The second and third reasons—for the challenge, and to relieve boredom—are more instrumental motives in the uses and gratifications tradition, but their percentages (14% and 11%, respectively) indicated far less importance.



The second theme is that the public, yet interpersonal, communication surrounding videogame play is important and obvious to videogame players. Asking nearly 1000 players between the ages of 10 and 18 what they did while not actually playing, Brooks reported these top four percentages (allowing for multiple responses): watching others (83%), waiting for a turn (82%), talking with friends (66%), and trying to learn a new game by watching others (33%; Brooks, 1983; Carlson, 1982). Brooks emphasized the considerable interaction among young and adult players. The primary competition seems to be between the player and the machine, not between players, so there is frequent commentary and communication among observers and with skilled players.

Third, this interaction helps explain why the majority in one study found arcades more enjoyable than playing with home videogames: Not only were the games better, but the ambience of public excitement while watching and interacting with an unfamiliar but similarly motivated public was an experience not possible at home (Schwartz, 1982).

Fourth, the same study indicated that media substitution of use for social activity does occur within the videogame context—further, that substitution shifted with players' ages, consonant with research on the relationship between children's cognitive development and use of the media (Lyle and Hoffman, 1972). In particular, younger players felt that they watched TV or movies less, or did not "just sit around," while older players felt that it was an additional social activity, part of a widening social arena.

Fifth, the role of videogames in facilitating learning is quite controversial. A symposium at Harvard concluded that such games are intrinsically motivating because they are highly interactive, involve quick reactions, provide continuous feedback, and motivate improvement. They foster inductive reasoning and parallel processing, i.e., the evaluation of many variables simultaneously (Time, 1983c). However, high school educators do not see the "sense of mastery" or the "introduction to computing," which are attributed to videogame playing, having any effect on mathematical or programming skills in school (Needham, 1983).

Sixth, many social activists as well as researchers are curious about if not critical of the content of videogames—largely violent action, designed by males for males. Indeed, Kiesler, Sproull, and Eccles (1983) argue that computing cultures in general, and video arcades in particular, place obstacles to girls' gaining computer literacy. Typically, girls do not play alone in arcades, and the spatial abilities needed for such playing are generally less pronounced in females. They argue, however, that there is "no evidence that girls are deficient" in the procedural thinking needed to program and analyze computers and videogames, but that the surrounding culture and socialization reduces female attraction to such activities. Indeed, when videogames mediate the face-to-face interaction involved in such stereotypically male activities such as poker playing—such as by video poker games—then females are attracted to and enjoy playing gambling games.

Seventh, a radical communication-theory perspective would view video-games as simply another aspect of an information society, which produces not only commodities but consciousness too (see Dupuy, 1980: 7). Indeed, Mosco and Herman (1982) argue that such "leisure" activities help train people in the theory and practice of ownership: "leisure is work, the process of building the audience commodity" (see also Mosco, 1982: Chap. 4).

## ORGANIZATIONAL CONSIDERATIONS

The widespread implementation of organizational communication systems is creating innumerable field experiments in the adoption, use, and impacts of new media. As research findings are reviewed in detail elsewhere (Keen, 1981; Kerr and Hiltz, 1982; Rice, 1980a; Rice and Case, 1983; Rice, Johnson, and Rogers, 1982; Tapscott, 1982; Uhlig, Farber, and Bair, 1979; Chaps. 8 and 9) we will consider several nonobvious theoretical implications in this section.

### Information System as Symbol

One problem with many current adoption and impact studies is an unbalanced emphasis on the amount and functionality of information. Yet consider the observations of Feldman and March (1981: 174), as they argue that organizational "use of information is embedded in social norms that make it highly symbolic."

(1) Much of the information that is gathered and communicated by individuals and organizations has little decision relevance.

(2) Much of the information that is used to justify a decision is collected and interpreted after the decision has been made, or substantially made.

(3) Much of the information gathered in response to requests for information is not considered in the making of decisions for which it was requested.

(4) Regardless of the information available at the time a decision is first considered, more information is requested.

(5) Organizational members complain that an organization does not have enough information to make a decision, while they ignore available information.

(6) The relevance of the information provided in the decision-making process to the decision being made is less conspicuous than is the insistence on information.

From this perspective, a paradoxical implication of organizational communication systems is that they may *increase* the extent to which members use information for symbolic, rather than functional purposes, because of the higher visibility and political consequences of more complex systems. Thus, theories of information system adoption need to consider how the *meaning* of the information provided and of the system itself are negotiated in organizations (Putnam and Pacanowsky, 1983).



### Communication System as Contingency

If actual communication changes when new communication systems are adopted, then perhaps the relationships that organizational communication research has uncovered between communication and other organizational variables will also change. That is, new media impacts may condition or falsify hypothesized relationships developed by past research.

Currently, computer conferencing and the more sophisticated electronic mail systems are particularly important for this discussion, because they are preeminently *group* media (Hiltz and Turoff, 1978). Designers, managers, or users can call upon the processing capabilities of the computer to *structure* communications. Chapter 6 specifically reviews research on mediated group communication.

The results in that chapter could be interpreted within the framework of Wiio, Goldhaber, and Yates's (1980) contingency approach to organizational communication research. We suggest that new organizational media, because of the kinds of impacts reviewed there, are a new contingency. For example,

(1) Electronic messaging can increase cross-organizational communication, even over diagonal, divisional relations. Will such messaging weaken the relevance of organizational level to information and communication patterns?

(2) Will early access by new members to other organizational members through electronic mail weaken the relationship between tenure, communication, and satisfaction?

(3) Will the increased span of control by managers, made possible by office automation, lead to decreased superior-subordinate relationships and a shift to less interpersonal performance evaluation methods?

(4) Will the expansion in the number of messages sent to and received from new members lead to "better relationships" and more satisfaction with organizational outcomes, or will managerial attention become even a scarcer resource?

The implication here is that new media should not be forced on organizational groups simply on the basis of the generalized benefits we know are possible from such technology. Rather, we need to match media usage to organizational tasks, group roles and norms, and individuals' personalities and preferences. Further, we need to specify our theories and concepts of organizational communication to include contingencies related to new media.

### Communicating with the Organization

Typically, organizational communication research considers communication within organizations (as, between superiors and subordinates, or within functions, or across boundaries) or across organizations (such as organizational action sets and networks, interlocking directorates, and environmental interfaces). Rarely do we consider communication between an individual (say a customer) and an organization. In the past this was probably because the customer always dealt with a specific individual (say at the customer service desk, or with a salesperson). Now, however, with at-home videotex transactional services, automatic tellers, electronic funds transfer, and "smart cards," an increasing amount of communication involves an individual (or group) actually communicating (or attempting to communicate) with an electronic interface of an organization.

A new kind of communication frustration and interaction is developing that communication researchers have not investigated. We might call this "parried" organizational communication. The early empirical studies (Sterling, 1979) and theoretical analyses (Singer, 1977, 1980) have uncovered an array of ways in which organizations parry, confuse, and divert attempts at communication by persons external to the organization. These authors would argue that internal organizational emphases on efficiency and rationality necessarily create external inefficiencies and irrationality. Singer describes several of these processes:

(a) hiding out (by using unlisted phone numbers),
(b) making communications with the appropriate person expensive and time consuming for the individual,
(c) responding with form letters,
(d) using corporate advertising and communications as a one-way advantage relative to an individual's communication capabilities,
(d) immediately enmeshing inquiring individuals in *error, work,* and *delay* circuits (both technical circuits such as insufficient telephone lines and organizational circuits such as routing the person to the wrong location),
(e) forcing individuals to write or appear in person,
(f) responding to requests with suspicion and secrecy, and
(g) enforcing rules and regulations that do not help the individual but do routinize the organizational inputs.

Typically, people respond with apathy, explosive behavior, subservience, or, in some cases, with "counterbureaucratic coping," such as billing for time wasted.

The more economic or radical interpretation is that information organizations use these techniques to buffer the system from exceptional transaction costs; individuals must bear the externalities of a rationalized, technological system that is built to handle the bulk of repetitive transactions, but not errors or personalized interactions. Of particular interest to communication researchers would be questions such as the following: Do managers receive feedback from the environment (in the form of irate individuals) in ways that generate altered communication policies or system design? How do office communication structures respond to these signals, if signals in fact permeate the organizational boundaries? How are the messages interpreted upon reception, and what difficulties does the internal person dealing with the issue have in forwarding or distributing the information within extant organizational networks? In particular, if internal communication systems are routinized, these messages will appear as deviant and will be charged against the customer service office's political and operational capital. On the other hand, such communication problems may forge informal links between staff personnel and technical specialists (see Meyer, 1968).



## THE PUBLIC DIMENSION

### The Information Society and Media Organizations

As noted in Chapter 1, a growing number and variety of scholars and researchers are claiming that we are becoming an information society (Bell, 1976; Drucker, 1969; Ito, 1981; Machlup, 1962; Porat, 1978; Williams, 1983). By this is meant that the majority of economic activities in the United States is involved with creating, handling, processing, maintaining, and distributing information. Information has become a prime component of work, which in turn may have profound effects upon the structure and operation of our society.

The change to an information society will also require new media organizations such as data-base brokers (see, for example, Chapters 5 and 10). It is already reflected in the complex interconnections among media and other institutions (consider the growing interaction between television, cinema, video music, radio, book, and videogame corporations). Fombrun and Astley (1982) discuss the development of such separate industries into a "telecommunications community." This convergence of media institutions and technology is seen by critical media theorists as a sign of (1) impending corporate power struggles, as heretofore unrelated industries begin to compete, and (2) growing integration of information and media into a corporate infrastructure—"a new phase of capital accumulation" (Webster and Robins, 1979).

From a theoretical perspective on media organizations, the new media are also affecting the production, delivery, organization, and survival of traditional media (see Hirsch, 1977 and Chapter 12). The old categories of media organizations are changing as new media are used, for example in electronic publishing, out-of-school education, and at-home library services (Cherry, 1980; Paisley and Chen, 1982; Smith, 1980; Turoff and Hiltz, 1982a,b; Williams and Williams, 1984). Newsgathering, editing, distribution, advertising, and telecommunications may converge under the control of a few large organizations. Consider the fact that Warner Communications, Times-Mirror, or Time, Inc. have, through vertical integration, control over cable, broadcast media, books, magazines,

newspapers, telecommunications (satellite transponders and private wire services), video, and facsimile. Or consider that extensive videotex penetration could lead to major realignments in sources and distribution of advertising revenues.

If researchers continue using traditional categories of information and media producers and distributors, they will increasingly overlook new concepts in the public media. Consider the concepts of gatekeeping and agenda-setting (McCombs and Shaw, 1977). The argument goes that due to professional norms, editorial philosophy, technological considerations, and the sheer volume of content, extensive gatekeeping is performed by editors, disk jockies, and television broadcasters. The content that is chosen for further distribution tends to tell audiences "what to think about" if not what to think. A tiny proportion of content sets the agenda.

Overlooked in current research is the effect of home-based electronic newspapers already available (see also Chapter 5). When individuals can use indices based on their personal interests to search through the entire AP, UPI, and Reuters newswire, then who is doing the gatekeeping? How will agendas be fragmented or segmented? Will this segment of the audience develop pictures of social reality at odds with their less sophisticated neighbors who use traditional media? Will they lose sight of other agendas entirely? Communication researchers should test current models for contingent conditions and further subgroup effects.

The fundamental issue here is choice and diversity. With satellite distribution, even a national medium such as *Time* can produce issues for different regions and even demographically segmented audiences within a region. Gannett's satellite-transmitted *USA Today* newspaper provides truly national news as well as locally inserted news and advertisements. While the early criticism of traditional media was that they were creating a mass, homogenized culture, now we hear criticism that the new public media will fragment and isolate us.

As new media organizations begin to reach audiences that before could be tapped only, by, say, the three television networks, then the economics change in ways that may lead to audience segmentation similar to the format and audience changes earlier seen in magazines and radio. This segmentation may, however, at first come along previous lines of social stratification. Further, from the extra-organizational perspective, the major corporations may attempt to develop and control new media and their content, leading perhaps to the corporate "privatism" of information (Schiller, 1982). Or certain status groups in society may become information elites due to their higher access to new media. More important, insofar as new media allow greater message flow among their users, the high-status elites could increasingly coordinate their power over others.

The segmentation of markets can also take the form of social stratification and create "knowledge gaps" (Ettema and Kline, 1977; see also Chapter 4). The gap could even take the form of cultural preferences for different media. The youth in one neighborhood achieves status from, and becomes addicted to, the large cassette radio, while a youth in another



neighborhood invites the gang over to play on the home computer. These differences may accentuate socioeconomic and cultural differences.

Further, the inroads new media are making on our national television networks, along with the access of certain socioeconomic and cultural groups to home information services, could result in reducing "free" commercial television to a very low quality level. In the past, the knowledge gap hypothesis posited that, with new means for communication, groups of users might increase their knowledge, but the information elite will rise to an even higher relative level. Now we must also consider whether some groups may even *decline* in knowledge levels or access to cultural diversity. This is a clearly testable hypothesis as the media environment of different social groups changes due to interactions between new and traditional media organizations and their markets.

We may now be in an era in which we have more and more organizations creating new markets rather than just satisfying perceived needs. It is possible that humankind is malleable enough in communication behaviors and needs that new media may be creating *new* needs—needs that have not been satisfied before, or that are externally created. Indeed, it is a testable question whether humans have still-unsurfaced communication needs.

## Social Diffusion of New Technologies

In this section we consider personal computers and medical information systems as topics of diffusion research. The first is diffusing quite rapidly, while the last seems stymied by factors often overlooked by diffusion research.

Diffusion of most new media in general seem to confirm Olshavasky's (1980) analysis of the change over time in the general rate of innovation adoption. Looking at 25 household innovations, and measuring the time to adoption as the number of months between 5% and 95% adoption, he found a significant coefficient for the successive year each innovation was introduced. More recent innovations seem to diffuse more rapidly. Individual and organizational decision processes may well be overwhelmed, to be replaced by conformity, imitation, and recommendations. Diffusion research needs to consider this abrupt transition in adoption behavior.

Personal computers are being taken home and to the office in increasing numbers. Over 400,000 were sold in 1980, yet they were first sold only in the mid-1970s. Ten million households are expected to have personal computers by 1985 (Rogers, Daley, and Wu, 1982). In the university organization, educators and support personnel are being introduced to personal computers as well as electronic mail and other systems supporting researchers and invisible colleges (Hiltz, 1983; Rice and Case, 1983).

Case and Daley (1983) report that of 832 respondents to a university faculty/staff questionnaire (a 41% response rate; 366 of the respondents

were faculty), 135 already owned personal computers and 331 planned to buy one in the next five years. However, 60% reported already using a terminal or word processor at work, although most (70%) used it no more than two hours daily. The most salient finding of the study was that, contrary to expectations that financial management and data-base access would be the primary reasons respondents bought small computers, text processing was by far the most common application, with more than three times (mean of eight hours per week) the number of hours used for the next most popular function, entertainment. This predominance held across a variety of subgroups. Projected uses by 324 potential adopters put word processing first in number of mentions (29% of all responses, 53% of cases) and entertainment fourth.

An in-depth diffusion study of the adoption of personal computers found similar results (Rogers et al., 1982). The top two reasons for purchase of a personal computer were "convenience of working at home" and "word processing," although those authors found the machines used most for games, and next most for work processing.

Other relevant results from the this study include (a) the entertainment functions lead to greater observability of the innovation, particularly in owners' communicating evaluations to potential adopters; (b) potential adoption was associated with considerable pre- and post-implementation communication networking; (c) in line with Olshavasky's proposition, there appeared to be a rapid rise in the rate at which certain variables influenced adoption over time; and (d) 40% of the owners reported decreases (averaging 1.5 hours per day) in their television viewing.

Clearly, university faculty are early adopters (as only 2% of all U.S. households are estimated to own personal computers now). Most universities, as organizations, appear totally unprepared for this rapid invasion of personal word processing and computing. Without adequate planning, and with continued ignorance of such diffusion, these organizations will be unable to cope with multiple incompatible systems. More important, their organizational culture, information flows, status relationships, and support personnel will be challenged to change and accept this particular communication medium.

*Medical information systems* appear to be an anomaly in the context of new media adoption (Gordon and Fisher, 1975). On the one hand, there are new approaches to the provision of information services to the medical profession, such as the joint venture by the American Medical Association (AMA) and General Telephone (GTE) to offer an online access system for medical information, via institutional and individual nodes in a nationwide network (Roberts and Crawford, 1982). The AMA will represent the quality control of content—a crucial medical concern—and GTE will represent the control of transmission technology. The system will even offer electronic mail, perhaps leading to more rapid diffusion of research and practice knowledge.

However, in-house medical information systems seem to be meeting stiff resistance. In spite of the heavy costs of patient-related data communications (nearly 40% of hospital cost per patient data—Ricord [1982]), most studies show a lack of acceptance of computerized patient and medical records systems (Brenner and Logan, 1980). Their "nondiffusion" review shows that medical information systems generally have favorable innovation attributes (except perhaps for complexity, compatibility, and reversability; see Rogers [1983] and Chapter 7), but that organizational and environmental elements prevent their diffusion. In particular, physician professional values, government intervention, and the public's image of physicians all ran contrary to how the system seemed to interact with the personal, organizational, and public aspects of adoption. For example, most physicians have a sense of professional autonomy; they feel that individualism rules in the profession, as most knowledge is unstandardized and obtained by experience; and there is a fundamental humanism involved in the public perception of medicine. Use of a standardizing, "expert" system would threaten both. Additionally, the traditional hierarchical control and political structures in hospitals would be threatened by a computerized information system. Finally, echoing our suggestion that new media organizations are blurring boundaries between kinds and owners of information, the rights to publicly generated medical information are being strongly disputed (Cummings, 1982).

Diffusion studies, in particular, indicate how adoption of new media technologies may become inextricably caught up in social and institutional structures. Public education is another example.



## Diffusion and Adoption in Education

How much can be the public benefit from new media as implemented by public institutions? In this section, we look briefly at television as a lost opportunity and small computers as a new one for our public schools.

The well-known Chu and Schramm (1967) reviews of the educational uses of television provide the best background for the present brief discussion. We know from many studies that television can be an effective instructional tool. One problem, until the application of formative research techniques in the development of *Sesame Street,* was that educational programming was often just an attempt to replicate a live instructional situation (see also Chapter 11).

The contributions of studies involving formative research of children's television span many theoretical areas—for example, attention qualities (Lesser, 1974; Palmer, 1981) as in *Sesame Street;* sex-role stereotyping (Johnson and Ettema, 1982; Williams, LaRose and Frost, 1981) in *Freestyle;* and organizational behavior involved in television production (Ettema and Whitney, 1982). All such studies go markedly beyond the earlier—yet valuable in their time—studies of educational uses of television.

Now another technology is pressing for implementation. It is the personal computer and its rapid and highly visible use by certain segments of society may force adoption by schools whether they like it or not. Since the early 1960s, the computer has been an intriguing topic for educational research and demonstration projects (see Figure 1.4). Yet the high initial

costs of mainframe systems along with the problems of adoption have prevented traditional computing from gaining a foothold in the schools. By contrast, the low initial costs and the widespread public acceptance of microcomputers as well as software designed for children (Papert, 1980) imply significant diffusion of this educational technology.

Yet all is not going entirely smoothly in the institutional implementation of microcomputing. In a recent review of the literature on the topic supplemented by site visits, Williams and Williams (1984) suggested that microcomputer implementation has many of the characteristics of traditional adoption situations, and similar theoretical implications. For example, many implementation outcomes are tied to opinion leaders. However, the diffusion is often horizontal rather than vertical. There is also the typical technology-implementation problem of materials (software). Moreover, the teacher—the ultimate gatekeeper—seems to receive the least attention of all. Rogers (1984), commenting upon this research, sees microcomputer adoption as very interpretable according to the implementation paradigm. One contrast, however, is that the adoption of this newest technology seems to be proceeding at a very rapid rate—especially considering that the microchip itself is a relatively recent invention. In a similar vein, Paisley and Chen (1982) emphasize that the implementation of computers is taking place in the midst of a rapidly unfolding new media environment for children, including videotext, telext, and videogames.

## THEORIES ABOUT THEORIES OF NEW MEDIA IMPACTS

This chapter has considered some theories at several levels of analysis—individual and group, organizational, and institutional—in order to suggest how the study of new media may profit from applying extant communication theories, and to suggest how those theories might need to be respecified in order to apply to new media. This section quickly surveys two frameworks for considering theories about technological impacts themselves. The very assumptions behind any particular approach to analyzing impacts—even assuming that the *are* impacts—naturally color and influence subsequent conclusions that researchers, implementors, managers, and users might have.

### Technology as Central

Kling (1980) provides the most comprehensive and explicit analysis of the perspectives taken in analyzing computing; one task for communication theorists would be to refine Kling's model specifically with respect to new media. For example, it may well be the case that the more decentralized and personal use of new media (including even the telephone, but also the personal computer) may not only shift the balance between the location and extent of organizational conflicts, but may introduce a different way of conceptualizing decentralization.



Social analyses of computing may be categorized into two broad theoretical perspectives. The *systems rationalism* perspective takes technology as its starting point, and assumes that rational design and use of the system is possible, although different brands of systems rationalism emphasize technical experts, managers, or users. Further, it assumes that consensus is possible, and that hierarchical authority accepted by organizational members is one form of consensus. Technology is managed for efficiency and satisfaction by individuals, groups, and organizations. The wider environment and social forces are rarely considered. Varieties of this perspective include (a) technical rationalism, with an emphasis on procedures, efficiency, productivity, users, tasks, and goals; (b) structural analysis, with an emphasis on organizations and formal units, information flow, uncertainty and structural attributes; and (c) human relations, with an emphasis on small groups, organizational resources and rewards, motivation, leadership, and participation. For example, analyses of the adoption of word processing in organizations from the three perspectives would focus on, respectively, (a) economic motivations and technical designs, (b) attributes of word processing as a concept and a technology, of the organization, and of its environment; and (c) acceptance of word processing through user participation in sociotechnical systems design (e.g., Chapter 7).

Another way to view the systems rationalism perspectives is to concentrate on the guiding principle that technology is "autonomous" and central to subsequent activities. Slack (1984) divides analyses that take this position into those which posit direct impacts of technologies on a defined object (such as a group) under a mechanical, Cartesian notion of determinism, and those that posit that although technology is still externally imposed, it may be redesigned (through engineering, policy, or application) to avoid negative impacts. She calls the latter approach the "symptomatic" perspective.

### Social Context as Central

Opposed to those perspectives are, in Kling's analysis, *segmented institutionalists.* For such analysts, relationships between technology and the social order are crucial. Indeed, the creation, design, and use of computing are inextricably wound up in the form and direction of the social order (such as an organization or public municipalities). Crucial issues here are control of the technology for maintenance of meaning, power, or social stratification. This perspective assumes that there will be social conflict, and that crucial values include individual and group sovereignty, equity, and the roles of stakeholders. Three perspectives within this category include (a) interactionism, with emphasis on computing as a package within a milieu, differentially situated social actors, and the negotiation and construction of meaning and identity; (b) organizational politics, with emphasis on the interests of social positions, opportunities and constraints, and bargaining; and (c) class politics, with emphasis on stratified

social relations, control over production and distribution, and struggles for power. These three perspectives might focus on different aspects of the adoption of word processing, respectively: (a) the preservation of important social meanings in the midst of work restructuring; (b) how specific departments use control over the technology for their interests; and (c) whether word processing "deskills" workers and rationalizes their work.

Again, Slack provides a different view of this distinction, labeling the opposing perspective "effectivity." Technology emerges from a social order and a context of effectivity, and is not independent of the totality of that order (see, for example, Noble, 1977; Webster and Robins, 1979). So analysts need to understand the larger social context, and need to jettison any assumptions that technology is externally generated and imposed, leading to impacts separate from the totality. She subdivides this category differently than does Kling: into perspectives concerning the "essence" and those considering "structural relations." The first considers technology as expressions of some social essence, which may be some ideal (such as the "mechanical age," "technique," or the "information age") or may be materialistic (the perspective taken by Marxists), generally meaning capitalistic (Mosco, 1982; Schiller, 1982). For example, Mosco and Herman (1982: 59) have written

> The communications revolution is shaped by regional and class struggles, by powerful capitalist forces molding that revolution to meet accumulation and legitimacy needs, and noncapitalist forces resisting hegemony and using information resources to build a new social order.

This position is applied forcefully to the information society by Dupuy (1980: 4) who, indeed, sees such a society not as a revolutionary transition from material production but as "a phase in the history of capitalism coping with its contradictions," and thus leading to increased alienation. The structuralism approach rejects a totality constituted as one essence, but considers totality as fully interrelated levels of instances—economic, political, ideological, and theoretical. Contradiction, conflict, and influence occur among the levels, manifesting an effectivity in which technology occurs—how it comes about, its form, it uses. Further, relationships among levels may change as new communication media become part of the totality.

### Theory as Central

There are several points to note about these models of perspectives (outlined in Table 3.4) taken about impacts of new media. First, Kling insightfully argues that the perspectives may be considered tools for



TABLE 3.4 Perspectives on Communication Technology Impacts

| | *Assumption: Technology as Central* | | | *Assumption: Technology as Part of Totality* | | |
|---|---|---|---|---|---|---|
| Modeled by Kling (1980) | Systems Rationalism | | | Segmented Institutionalism | | |
| | Rational | Structural | Human Relations | Interactionist | Organization Politics | Class Politics |
| Modeled by Slack (1984) | Mechanistic | | | Effectivity | | |
| | Direct Impacts | Symptomatic | | Ideal or Materialist Essence | Structuralism | |

analysis: Using complementary or appropriate perspectives to analyze certain kinds of computing instances may lead to insights specific to that instance; another instance may call for a different analytical perspective. For example, systems rationalism may be more useful as a perspective in stable settings where consensual values are supported; the segmented institutionalist perspective may be a better tool in complex and dynamic instances where diversity of interests will likely lead to conflict. This leads to the second point: Whichever perspective is taken, if unswervingly held and indiscriminately applied, it will constrain understanding. Third, there are methodological constraints associated with particular perspectives that either may make evidence less persuasive or require the acceptance of new methods. Slack, for example, analyzes patent law to uncover interactions among levels in the development of communication technologies; interactionism may call for participant observation and qualitative analysis; technical rationalism may require a familiarity with cost-benefit analysis. Fourth, there are, as always, practical constraints to applying various theories: A manager in an organization may not be able to investigate, much less change, the social order; a symptomatic approach may not only be the only one possible, but may be quite fruitful.

Finally, it is perhaps misleading to categorize many analyses at all, and certainly to do so in simplistic ways. There are few evaluations of new media by social scientists that do not call attention to the social context. As Kling concludes (1980: 104), "the ecology of interests in any social setting must be a starting point for understanding computer use." Kerr and Hiltz similarly conclude (1982: 177) that "we believe that the challenge is not primarily in further perfecting the computer and telecommunication technology . . . but in the social engineering problem of fitting the technological possibilities within particular social contexts." This chapter has attempted to consider some of those theoretical and social contexts, with specific emphasis on communication theories.

## SUMMARY

There is a need to rethink the contexts or paradigms by which we often organize our research focus. At the outset, we mentioned the blurring lines between interpersonal and mass-mediated contexts. We must increasingly account for the coalescence of personal, organizational, and public contexts of human communication. We may need entirely new paradigms.

For example, research aimed at understanding human benefits from new media should focus on the unique strengths of each medium rather than only on how they compensate or substitute for more natural media linkages. This requires research-based insights into these unique strengths and the broader subjective question of user satisfaction as well as media styles.

We need also to inspect our assumptions, or theoretical perspectives underlying theories, implementation, and analyses of new media. Without an awareness of other perspectives, we may fail to understand the contexts in which technology itself appears and functions, and in which people attempt to use, control, or evaluate new media.

Our argument, then, is simple. The new media need to be included in traditional communication research, but we need to look at those traditional theories untraditionally. The new media are providing new arenas for communication research, new perspectives in traditional areas of communication research, and new questions for analysis and theory. New media may, in fact, necessitate a considerable reassessment of communication research. Intellectual changes must occur to match the growing changes in communication behavior.

## NOTE

This chapter significantly revises and extends some ideas first presented by Williams and Rice (1983).