The Communications Revolution Revisited

Williams, Frederick*

A. Introductory Comments

Thank you, President Park and Professor Kim. It is a pleasure to be your guest in Seoul and have the opportunity to share thoughts with you on the concept of Korea as an information society.

It is an increasingly recurring thought to me that I am privileged to live my professional life in what many have come to call "the information age". I began my long involvement with communication technologies over 30 years ago as a young naval officer where I learned early of the value of information and the tactical and strategic uses to which it could be applied. Similarly, in my life as an academic, I have seen the growth and respect of information as a strategic asset in business, governance, and in the general conduct of human relations.

Particularly since the early 1970's and in my role as founding dean of the Annenberg School of Communications at the University of Southern California, I have been impressed with the increasing intellectual attention given to the value of information and the new technologies that contribute to such value. Now, currently in my new role as the developer of a research center in information technologies and society at the University of Texas, I am all the more impressed with the need for innovative and multidisciplinary research into that topic. It is this emphasis upon fresh ways of thinking about information, and particularly the human benefits that so enthuses me about our conference today.

I would like to divide my keynote remarks into four areas. First, I will take a few minutes to address the "problem of getting organized." The social study of information technologies is a relatively new subject and necessitates us sharing some thoughts on strategies for approaching the topic. Second, in my role as a social scientist, I would like to review some of the more popular information technologies that I earlier (1980) wrote about in my book, THE

* Director, Center for Research on Communication Technology and Society, The University of Texas at Austin.

COMMUNICATIONS REVOLUTION. My thesis stated in that book and that I still hold today is that the aggregate effect of these technologies is one of environmental change, the third topic of my speech. Finally, as a brief fourth topic, I would like to address my concluding remarks to the challenge of our conference. Our sponsors have posed very challenging questions for us to address and have also assembled a remarkable range of expertise for aiding us in this task. Not only must we contribute the best possible to our Korean hosts in the quest for an information society, but we should all go away having learned from one another.

B. The Problem of Getting Organized

Early in my decade as the dean of an advanced studies program in communications, I was constantly challenged to search for the larger model or theory that would assist us in organizing our subject matter. However, it has only been in the past several years—particularly in interaction with my Annenberg School colleagues—that I have begun to be impressed with how the marked disarray of competing interests that affect communication technology in society may itself suggest a strategy for approaching this vast array of subject matter.

In essence, I find it increasingly useful to think of communication technology and society as progressing somewhat akin to a *game* among stakeholders. When we examine the motives of stakeholders, the larger complex picture of technology implementations (or failures) becomes more understandable. My current position, therefore, is that to solve the problem of getting organized, if you do not already have a framework, I suggest that you consider a game analogy. In this analogy, we have stakeholders in the roles of technologist, investors, the military, buyers, critics, and researchers, to name the major players. For any one stakeholder to achieve his or her objectives (as in a business to gain a return on investment, a social service agency to serve its clients, or for a researcher to draw theoretical conclusions), that individual's or organization's activities will have to be conducted among the field of competing interests of the other stakeholders.

Thus, as we assemble here to discuss and debate the information society in Korea, we may, in effect, find ourselves defining the stakeholders in and out of government in this nation, the international competition, and the

ideals that political and philosophical intellectuals see for this country. Whether or not you benefit intellectually from this approach, it is at least an example of the necessity for getting organized in our topical area.

At this point, let me turn from my role as keynoter to that of a social scientist, commenting upon the uses of some of the more visible communication technologies in the American economy. In order to limit my remarks, I will concentrate on those technologies that are fairly well in the hands of users (such as video cassettes, or telephone) rather than those that support the communications infrastructure (e.g., satellites). Moreover, I will concentrate on the general population rather than the business environment, although I do much of my work and book writing in the latter area.

C. Brief Considerations of Selected Media

1. Cable and broadband networks

Although cable television has had a long history of simply extending the signals of over-the-air broadcasters, the more modern and ambitious vision is one of wide selection, broadband communications services, including interactive ones. These can range all the way from televised entertainment to interactive banking.

One study that deals directly with expectations associated with cable television points out the requirements for researchers to expand their concept of what types of specific gratifications these may include. Shaver (1983) conducted focus group interviews and found dimensions of functions relating to the unique aspects of the medium. The two most frequently mentioned motives for viewing cable TV were "variety" provided by the increased number of channels and programming choices and "control over viewing" associated with the flexibility of programming. Although the study does not group dimensions in this manner, the motives fall into content (religious programs), structural (variety), service (better reception), and psychological needs (companionship) categories. Some of these gratifications have also been associated with traditional broadcast television (such as general surveillance), but others are relatively linked to the cable TV medium.

In a study conducted by the Opinion Research Corporation (1983), people who choose whether or not to subscribe to cable TV were loosely classified into user groups. Although better reception was still mentioned as the pri-

mary reason for subscribing to cable, certain other distinctions between users were defined. Three such groups reflected the following characteristics:

(1) Undifferentiated users of the medium who will watch everything and are early adopters of cable.

(2) The "Entertain me" group—who primarily seek entertaimment and diversion and are likely to be Pay TV subscribers; and

(3) the "Basic but..." group—who are more differentiating in their use; specifically, they want sophisticated, intellectually stimulating, children's, family oriented, or information programming, and are likely to seek out home services and other special services. These groups are interesting since their functional needs are perceived as different, even though they are all users of cable TV.

The foregoing study shows that functions relating both to the form and to the content of the medium will be associated with a technology. Furthermore, a distinction seems to be evident between people who seek out entertainment or escape and those who seek a variety of specific services, a point we raise later in consideration of the new "text" services.

2. Video cassettes

Video cassette machines allow the audience choice in the temporal dimension, and perhaps along the qualitative dimension proposed by Levy and Windahl (1984). Specifically, video cassette recorders, which are rapidly growing in popularity and use, offer the audience the opportunity for "time-shift viewing" (Waterman, 1984). Unlike video disks, which for the present, can only be obtained with pre-recorded content, blank video cassettes can be used for recording broadcast or cable TV programs for viewing at a later time.

Studies (e.g., university students studied by Phillips, 1982) consistently indicate that time-shifting and prerecorded theatrical films (e.g., Waterman, 1984) are the most popular uses of video cassette machines. Further uses include playback of home-produced tapes, self-help programs (e.g., exercises), educational materials, the newly popular "music videos," and uses coupled with a camera. (See also studies by Levy and Fink and by Rue as discussed in Palmgreen, 1984).

The foregoing uses of video cassettes reflect especially on the psychological consequences of choice, time, and mobility associated with certain new media.

The program content may often be the same as in the older medium (e.g., television or films), but the additional advantage is now related to circumstances of use. Nor should we overlook that cost may often be reduced, as with the case of viewing films. In all, the implications here are that a new media technology may offer less in the way of new gratifications itself as it makes traditional gratifications (e.g., TV shows, movies) more easily obtainable.

Cassettes also hold implications for the structure of the film and television program industry. One advantage in the production and distribution of video cassettes is that new productions can be economically viable without having to appeal to large audiences. Thus we may see the proliferation of highly specialized cassette programs along with those geared to the mass market.

3. Interactive services

Of course, our most prominent interactive media technology, the telephone, has been with us for over a century. And, as subsequently discussed, it embodies many of the promises of the new media. Other interactive technologies of current interest include two-way cable (e.g., the Warner-Amex "Qube" system), various forms of text services both broadcast or cable transmitted ("teletext") or available via phone networks ("videotext"). The interactive capability of such services is used for different purposes, ranging from the selection of programs to a full two-way message system. Psychological consequences include greater selection, more personal control over selection, and the sense that one can be a communications source as well as receiver.

It is now becoming commonly known that interactive television services such as Qube are not as popular as was originally envisaged. A reason frequently given is that the American television audience has grown to expect mainly entertainment and escape—that television offers respite rather than involvement. Another reason is that for interactive services to hold longer range customers, they must offer combined advantages of time, convenience, and cost. Noteworthy is that while there has been little growth of interactive television on a mass media scale, there has been steady growth of specialized information services such as offered by Dow Jones News Retrieval, The Source, or CompuServe.

There is currently one study of interactive services that bears upon functional dimensions of use. Dozier and Ledingham (1983) identified two key di-

mensions in use of interactive banking, shopping, and home security in San Diego; these were "surveillance" and "transaction." The surveillance mode, a "read-only" status, was found to be more attractive to users than the transaction, "read-write" interactive mode. Although not based upon formal evidence, this finding prompted the researchers to conclude that all other factors being equal, the surveillance function of this information utility will be adopted more rapidly than the transaction function.

Information retrieval systems are sometimes associated with a "depersonalization" factor, one reflective of "social presence" studies (Short, et al., 1976). Consider, for example, interactive systems used mainly for electronic banking, computerized shopping, and home security. The same Dozier and Ledingham study revealed that while there are perceived advantages such as time savings and convenience, such services are often viewed as not being worth the disadvantage of the loss of social interaction. Although the desire for convenience is served, the need for getting out of the house and engaging in daily social interactions goes unfulfilled.

4. Teleconferencing systems

Uses of technologies have various forms in conferencing applications. These can include audio, video, facsimile, data, or text links, as well as combinations of any of them. Most studies of teleconferencing have centered upon factors of effectiveness rather than upon needs satisfaction.

Although audio conferencing has long been available through U.S. public telephone services, its use has been surprisingly modest given all of the attention given to modern teleconferencing. Many studies (e.g., Dutton, Fulk, Steinfield, 1982) have shown that with proper management teleconferencing can be quite effective in meeting situation-specific communication needs of corporate communication.

Computer teleconferencing has grown in recent years, especially in organizational environments where messages may be stored for forwarding—as in "asynchronous" conferencing. Hiltz and Turoff (1979) suggest that there is an effective dimension present in computer teleconferencing. People may anthropomorphize as they use computers in roles ranging from psychiatrists to "partners in crime."

Computer aided networks such as electronic bulletin boards and "online" services (e.g., The Source) are becoming more publicly accessible as more

people purchase home computers. The choice to use such systems seems to reflect various motives. In addition to accomplishing specific tasks (as discussed with information services), these motives include the desire to establish and maintain contacts outside one's own geographic areas, the need for access to schedules, and the like. Hiemstra (1982) and Rice (1980) suggest that such uses do not always depend upon interpersonal involvement, hence, the technical restrictions of the medium do not so much impede effectiveness.

Yet Hiltz (1978) as well as Phillips (1983) found that people are very active in their socio-emotional use of computers for working out problems and in using face-saving tactics or stream-of-consciousness thinking, even when the conference they are involved in is task-oriented. There is also apparently a personal utility type of factor involved.

5. Electronic mail services

Some of the computer based conferencing systems such as discussed above have the same characteristics as "electronic mail." Essentially, messages are sent to a central computer where they can be retrieved at the receiver's request. For several years, the U.S. Postal Service offered an "ECOM" service whereby computer originated mail was electronically distributed to post offices nearest addressees, then printed and mailed first class. Although that service has now been discontinued, various forms of it are offered by Western Union, Federal Exprest, and MCI.

To the author's knowledge there are no major social scientific studies of electronic mail of this type. Yet, the implications are that being able to send mail nearly instantly from a home computer keyboard must have some visible gratifications lest the electronic mail business have no commercial value. Are factors of choice and mobility, or just simple convenience, important here? Or are there other, deeper, satisfactions such as the ease of keeping "in touch" with colleagues or friends? Is electronic mail only perceived as a convenient substitute for traditional forms of postal services, or does it offer new satisfactions?

Computer networks within orgnizations sometimes offer messaging systems also referred to as electronic mail. In a study of one such system, Steinfield (1983) found that the mail system was used for a wide variety of purposes, some that bore litttle resemblance to the standard teleconferencing-based uses. A search for major dimensions of use uncovered "task" and "socio-

emotional" use clusters. The former were self-evident, mostly the act of transferring or obtaining information. The latter, however, might appeal to uses and gratifications theorists. It related to the maintaining of personal relationships, feeling a part of the organization, and being "in touch." Social uses were reported almost as frequently as were task-oriented ones. Again, "personalization" is an important gratification associated with some media technologies.

6. Personal computers

Although personal computers were available in kit form by the middle 1970s, the great public interest in them did not begin until 1978 when three machines, the Radio Shack, Commodore PET, and Apple II, began to be aggressively marketed. An important part of this marketing process was the existence of the many thousand Radio Shack store outlets in the United States and the development of the nation's first computer store chain (Computerland). The first gratifications promised for these small computers were mostly ones related to home activities, such as budgeting, games, or education. There was also some attempt to market these machines to small businesses who were not traditional users of then existing large "mainframe" or "minicomputer" systems.

In contrast to the initial promises, the availability and immediate popularity of two types of programs essentially changed the initial conception of the personal computer market. These two programs were ones serving functions of word processing and financial "spend sheets." Thus, although the computer was initially marketed as a type of "universal" machine that would offer a myriad of gratifications for its user, its use for producing text, and doing small scale financial analyses were the driving force in the proliferation of these machines that occurred in the early 1980s. Although gratifications associated with video games could also be served by programs for personal computers, most of the video game craze in the United States (which collapsed in 1984) was on small machines that played only games, not on personal computers. The promised educational use has been realized in modest proportions, but more in computer implementation in the schools than in widespread educational use in the home.

In 1981, the personal computer market was changed even more by the introduction of a relatively low cost machine produced by International Busi-

ness Machines. This machine rapidly became the standard for microcomputers in business environments, a consequence of the respected IBM name as well as the availability of quite powerful and useful business programs. The leader in these business applications has been a program called Lotus 1-2-3, which in one package combined spread sheets, database management, and graph drawing capabilities, coupled with the ability to transfer data directly among any of these applications. As it now stands in the mid 1980s, nearly a decade after the introduction of the first hobbyist computer kits, the personal computer is recognized far more for its singular instrumental types of uses, such as word processing or calculations, than it is as a general source of gratifications that could presumably be served by a large librarary of software.

There is, however, one change on the horizon. The most popular home "text" services have been those delivered over telephone lines to personal computers equipped with "modems." (A modem is a device that converts digital computer codes into analog ones compatible for telephone transmission.) If the so-called "online" information services continue to grow, we may see another chance for the home computer to become a more universal instrument offering a variety of gratifications including electronic mail, games, chit-chat, news and information, scheduling activities, and even remote shopping services.

Little formal research exists on uses and gratifications associated with personal computers. The popular anecdotal literature suggests that individual who purchase personal computers for reasons other than business applications generally are those who wish to feel that they are "modern," "keeping up with the times," or "computer literate." This well could change, however, if the home computer terminal becomes as functional for everyday text or data exchange over the telephone lines as has the traditional voice use of the telephone.

7. New telephone uses

We have chosen to give the telephone some attention in this discussion because for years it has provided interactive services that are highly accepted in all modern societies. Ironically, however, the telephone has received very little attention from social scientists and almost none in the uses and gratifications literature. Its study in retrospect, as well as in current changes, can

contribute to our understandings of uses of new technologies.

Keller(1977) has postulated that telephone use has two dimensions, the instrumental and the intrinsic (i.e., talking on the telephone for its own sake). The concept of the telephone's intrinsic uses are further borne out in Wurtzel and Turner's (1977) study of New York City residents whose telephone service was temporarily cut off. Contrary to the expectation that other forms of communication would be substituted for the telephone, it was found that certain uses of the telephone, particularly for making social calls, were not substitutable.

An ethnographic study of telephone uses(Phillips, Lum, Lawrence, 1983) revealed that people tend to differentiate between business and pleasure calls. Business-related calls and some types of social calls to certain people in various relationships to the caller are thought to be more appropriate for the workplace, while social calls and some business calls are more appropriate for the home. Thus use is associated with location and relationship along the business-pleasure dimension.

Lum(1984), in conducting a series of in-depth interviews about phone use with senior citizens in Hawaii, found two major perceived needs dimensions satisfied by telephone use. The "convenience" dimension was divided into the area ef social calls and informational calls, which includes the need to "get information and get things done." The second category was that of "contact" calls, and included social obligations calls(perceived as necessary to uphold the notion of one's social role), "I care," or extremely affective calls meant to "brighten one's day," say "I love you," or to lift morale.

Another important observation that respondents did not consider their telephone use similar to the singular use of a communications medium. Instead, there was far more emphasis upon its content and use as an interdependent part of everyday life. Lum found that other media were brought up as being important, especially when respondents were asked to imagine what would happen if their phone were taken away. For instance, one person mentioned that without the telephone the world would "go slower" since there would be no direct contact; television would be watched but could not substitute for telephone use. Further commentary on social uses of the telephone can be found in the recent research document by Williams and Dordick(1985).

D. Notes on the New Media Environment

1. Expanded choice

Although we initially took the position that the new media are less "new" than thay are extensions of traditional media, there are many new circumstances of use that together contribute to a wide array of new or modified uses and gratifications. In order to understand how these uses fit together and how media are used to satisfy needs, we must look to the individuals' total media environments. Changes might be seen as initially structural, for example, in that there are profoundly more alternatives from which to choose. But they can also be seen in terms of specific modifications of choice, as, for example, in how the introduction of pay cable services have altered the uses of other media. As a result, media use may become more highly differentiated in serving communication needs. To continue the example, some uses of cable may substitute for uses previously assigned to broadcast television but new uses will also appear that are complementary and not substitutes for old media uses. One new use might be to purchase special informational programs on the stock market.

2. Special qualities of interactivity

The literature frequently suggests the importance of the emerging contrast between technologies that are interactive versus those that are non-interactive. Surely, they may serve different communication needs. This contrast shows up particularly in experiences with the new text services. On the one hand, services have been designed to meet a wide variety of media needs(e.g., as traditional publishers have attempted to distribute "electronic" magazines), presumably many of which would be definable in terms of traditional uses and gratifications. On the other hand, there are the gratifications associated with specific, utilitarian services(e.g., banking) that are so specifically task related that more general gratifications concepts seem irrelevant. For example, using videotext to make travelreservations is fundamentally different from deciding to view a movie with your video cassette player.

3. Personalness

Interactivity looms in further importance with its potential for "personal-

ness" both in offering a wide variety of choice(as in an interactive pay cable system) and the potential for interpersonal-like transactions between individuals or among groups of communicators(as in electronic mail). These are both qualities that especially distinguish new media from old. There are also the rhetorical implications of developing "personalized" communications styles for use in new media(as, for example, in teleconferencing).

4. More specific and personalized gratifications

There is greater opportunity for unique, personalized gratifications, some distinguished from traditional media rewards. Text services present a potentially infinite range of alternatives for the consumer-user. As contrasted with a mass communications medium where uses and gratifications research has often associated certain satisfactions with a given medium, text services, by their nature, could offer any gratifications allowable by the nature of the medium(and, of course, viable in the marketplace). This leads media development away from products(esp., films, television shows) that must capture a large mass market in order to survive. There is a greater potential in text services for more esoteric materials to be made available. They need not have mass appeal, a characteristic that fits the current concept of "demassification" of media.

Interactive media such as computer mail or bulletin board services also allow people the opportunity to be message disseminators. As such, they may help gratify a need to circulate a message to many receivers simultaneously or asynchronously. A further observation is that, as discussed earlier, some of the most utilized text services are those where the satisfied need reflects accomplishment of a specific task(e.g., booking theater tickets) rather than a traditional media-related satisfaction(e.g., being entertained). The task may have emotional dimensions as well. For example, people may use computer bulletin board services to meet new friends(even romance!) or to share ideas concerning a highly specific topic of interest.

5. The concept of audience

The vastly increased choice potential of certain new media(e.g., video cassettes, text services) changes the concept of the relation of media-and-audience vis-a-vis selection. If this is so, the concept of "audience" itself becomes problematic and the direction for future research should look at individuals

as participants. Perhaps many. assumptions about audience need to be reexamined. For example, as the degree of media and content self-selection increases, "audience" takes on more the nature of individual "participants" than aggregate groups. General models for examining audience gratifications from traditional models become less useful.

E. The Challenge for This Conference

At the maximum, our challenge at this conference is to gain larger and more profound insights into the evolving information society of Korea, and toward this end, we have been asked to address ourselves to certain key questions. For example:

What kinds of cultural changes would the technological developments bring about?

That culture is the subject of this first question underscores the profound challenge of technological impacts. It is ultimately the long range cultural impact that will have the greatest effect upon us all. Put another way, we should be reminded that the social effects of technology use are often divided into immeidate and visible effects, but these are sometimes superficial. The longer range effects may have greater impacts on our lives. The coming of the automobile is a useful example. One of the earliest consequences of the coming of the automobile was the problem of dealing with horses and other inconveniences in traffic, a short lived phenomenon as the automobile came to dominate our transportation. A longer range consequence was the necessity to build roads and to develop the distribution of petroleum fuels. An even longer range effect of the automobile has been the evolution of suburban society reflecting not only a change in the pattern of urban growth, but in attitudes and behavior that range all the way from changing patterns in homes and work, but even to courting behavior.

How will the rapidly evolving information technologies affect the social fabric and principles of human organizations?

Although I did not focus on the business environment in my earlier remarks, I would hold that no major organization has made successful use of information technologies without that organization itself undergoing substantial change. In this last year, the giant American Telephone and Telegraph company claimed that it was able to remove one entire layer of middle man-

agement because, through the use of information technologies, higher level managers could supervise almost double the number of employees. Or for a more domestic example, the adoption of television as a major entertainment medium in the home has changed the organization of activities in the home, the time schedule, and even conversational patterns. The literature on television and behavior is replete with examples of social change wrought by the invasion of television into our homes.

Will the information society be conducive to democracy as some predict? Or would it on the contrary, lead to an Orwellian world?

The response to this question, I think, is much more challenging than the "either-or" alternatives as presented. In the United States, at least, information technologies have had a profound effect upon what many social scientists call "image building" on the part of political candidates. National and even major state political races are conducted for all practical purposes almost entirely on television. One of the most striking components of this evolution is the application of show business, commercial message and other attention and persuasive strategies to promote images of candidates. This, I believe, is increasingly displacing relatively objective news coverage. Our politics may be played out like competition among breakfast cereals, where the greater or the more talented advertising and promotion wins the market.

There are, of course, other questions raised by our hosts. But the foregoing should remind us of the magnitude of our challenge at this conference. Fortunately, we are well equipped to respond to these weighty questions because of the wide variety and depth of talent assembled for our meeting. Thanks to the cooperation of many of our participants and the efficiency of our hosts, many of us have had the opportunity to read the majority of the papers contributed to the conference. I must say that those papers which describe the growth of information technologies in Korea or Singapore, or those that attempt to model growth are in my estimation examples of "state-of-the-art" for such undertaking. It is important for us to be able to capture in some detail the picture of the growth or likely growth of information technologies, and in the West we have too few economists devoting themselves to this task.

So, too, must we not lose sight of the larger issues that confront us in the conception of an information society. In many of the broader, more philosophical or political papers, we are confronted with the natural antago-

nism of public versus private interests in technological development. Several of our colleagues have stressed to us that the likelihood of large scale integrated service digital networks (ISDN) are the likely technological alternative for our international telecommunications environment, but that there is much growth in private networks as public ones. We are challenged also to consider the demands upon our legal system in order to insure equity in this matter. Finally, a number of our colleagues prompt us to envisage larger alternative social models of an information age, ones that are not just strictly technology or anti-technology bound, but plot presumably a more ideal middle road.

To conclude this keynote, I would like to return, for a moment, to my earlier thoughts about a *game*-based analysis of the competing forces in the information technology revolution. It seems to me that to meet our challenge over the next several days, we will not only have to identify stakeholders, particular technologies, experiences, policies, laws, or even philosophies of entire societies. We will have to consider the discernible ideals of our respective societies and particularly assist our Korean colleagues in this definition, and in effect, attempt to describe what would be a "successful" game in the struggle for human benefits in the age of information technologies. That is to say, if we have the opportunities to create new economies and new ways of life, what do we want?

How will we know when we have won the game?

References

Blumler, J. and E. Katz, eds.

1974 *The Uses of Mass Communication.* Beverly Hills, Calif.: Sage.

Dozier, D.M. and J.A. Ledingham

1982 "Perceived Attributes of Interactive Cable Services among Potential Adopters." Paper presented to the Human Communication Technology Special Interest Group, International Communication Association Annual Convention, Boston, Mass., May 2.

Dutton, W.H., J. Fulk and C. Steinfield

1982 "Utilization of Video Conferencing," *Telecommunications Policy*, September, 164-178.

Hiemstra, G.

1982 "Teleconferencing Concern for Face and Organizational Culture," in Burgoon, M., ed. *Communication Yearbook 6*, Beverly Hills: Sage, 874-904.

Hiltz, S.R.

1978 "Controlled Experiments with Computerized Conferencing: Results of a Pilot Study," *Bulletin of the American Society for Information Science* 4:11-12.

Hiltz, S.R. and M. Turoff

1978 *The Network Nation: Human Communication via Computer*. Reading, Mass.: Addison Wesley.

Keller, S.

1976 "The Telephone in New(and Old) Communities." in I. Pool, ed. *The Social Impact of the Telephone.* Cambridge, Mass.: MIT Press.

Levy, M.R. and S. Windahl

1984 "Audience Activity and Gratifications: A Conceptual Clarification and Exploration." *Communication Research* 11:51-78.

Lum, P.

1984 "Telephone Use By Senior Citizens: Community Snapshot." Unpublished paper. Annenberg School of Communications, University of Southern California. Los Angeles, Calif., May.

Opinion Research Corporation.

1983 "Segmentation Study of the Urban/Suburban Cable Television Market," Prepared for the National Cable Television Association. Princeton, N.J.: Opinion Research Corporation.

Palmgreen, P.

1984 "The Uses and Gratifications Approach: a Theoretical Perspective." in Bostrom, R.N., ed. *Communication Yearbook 8*, Beverly Hills: Sage.

Phillips, A.R.

1982 "Attitude Correlates of Selected Media Technologies: A Pilot Study," Unblished paper, Los Angeles: Annenberg School of Communications, University of Southern California.

Phillips, A.F.

1983 "Computer Conferences: Success or Failure?" in Bostrom, R., ed. *Communication Yearbook 7*. Beverly Hills: Sage, 837-856.

Phillips, A.F., P. Lum, and D. Lawrence

1983 "An Ethnographic Study of Telephone Use," Paper presented to the Fifth Annual Conference on Culture and Communicaion, Philadelphia, Penn., March.

Rice, R.E.

1980 "The Impacts of Computer-Mediated Organizational and Interpersonal Communication," *Annual Review of Information Science and Technology*, 15:221-249.

Shaver, T.L.

1983 "The Uses of Cable TV," Unpublished Master's Thesis, University of Kentucky.

Short, J., E. Williams and B. Christie

1976 *The Social Psychology of Telecommunications.* New York: John Wiley.

Steinfield, C.S.

1983 "Communicating via Electronic Mail: Patterns and Predictions of Use in Organizations," Dissertation, Annenberg School of Communications, University of Southern California, December.

Waterman, D.

1984 "The Prerecorded Home Video and the Distribution of Theatrical Feature Films." Paper presented at the Arden House Conference on Rivalry among Video Media. Harriman, N.Y., April.

Williams, F.

1983 *The Communications Revolution.* New York: New American Library.

1984 *The New Communications.* Belmont, Calif.: Wadsworth.

1986 *Technology and Communication Behavior.* Belmont, Calif.: Wadsworth.

Williams, F. and H.S. Dordick

1985 *Social Research and the Telephone.* Los Angles: Annenberg School of Communications.

Williams, F., A.F. Phillips and P. Lum

1982 "Some Extensions of Uses and Gratifications Research," Unpublished paper, Los Angeles: Annenberg School of Communications, University of Southern California.

Wurtzel, A.H. and C. Turner

1977 "What Missing the Telephone Means," *Journal of Communication* 27: 48-56.