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ABSTRACT

This document summarizes projects and and research activities for the year 1975-1976 in five areas: (1) international communication, (2) health communication; (3) communication technology and public policy; (4) communication and media; and (5) information needs and uses. Specific activities discussed pertain to educational development and communication planning via telecommunication in rural India, the Ivory Coast, Guatemala, Nepal, and Pakistan; the Stanford Heart Disease Prevention Program; telemedicine in Alaska; and computer networking. Lists of doctoral dissertations, recent publications of the Institute personnel, and Institute publications in Educational Resource and Information Center (ERIC) and National Technical Information Service (NTIS) are appended. (SC)

THE INSTITUTE FOR COMMUNICATION RESEARCH

ANNUAL REPORT
1975-1976

STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305

OCTOBER 1976

INTRODUCTION

The roster of projects and research activity at the Institute for Communication Research has been extensive and diversified. During 1975-1976 the principal programs in international communication, health communication, and in communication technology and public policy investigated how media and the processes of communication can be of the most effective and economical service.

Highlighting this past year's activity in international communication was the July conference on communication policy and planning for educational development. A large representation of participants from Third World countries convened on the Stanford campus to discuss and review the applications of various communication technologies and the corresponding policy options available to planners and policy makers in education.

A joint seven-year program (1971-1978) between the Institute and the Stanford Medical School to study the modification of cardiovascular risk factors through a communication education program has now analyzed results for the first two years of the program and has preliminary findings for the third year. Known as the Three Community Study, the program conducted a mass media campaign with and without an intensive face-to-face instruction program to determine the change in coronary risk factors for dietary cholesterol, smoking, and exercise in three Northern California communities.

In February 1976 the final report on evaluating the use of satellite video for transmitting vital health information from remote Alaskan villages to health care centers in Tanana and Fairbanks, Alaska was published. Evaluations of the biomedical applications of the Applications Technology Satellites One and Six have been ongoing at the Institute for over five years.

The above projects and others are discussed in the following pages, but entail only a brief overview. And certainly not every facet of activity here at the Institute is presented. Because of these limitations we do urge those who are interested in further information about the work being conducted here at the Institute to address their inquiries to the individual investigators responsible in care of the Institute.

The Institute for Communication Research serves as the interdisciplinary research division and the Ph.D. training arm of the Department of Communication and is directed by Nathan Maccoby, Janet M. Peck Professor of International Communication. All inquiries concerning instructional programs offered in Communication, both undergraduate and graduate, should not be directed to the Institute but to the Department of Communication, Stanford University.

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COMMUNICATION AND DEVELOPMENT

International Communication

For over ten years, one of the principal research activities of the Institute has been devoted to seeking solutions to the development problems of Third World nations through improved use of low cost communication media. Among the projects undertaken in this area have been cost-effectiveness studies on Telesecundaria and Radioprimaria in Mexico, and studies on the effectiveness of instructional television in American Samoa, Colombia and El Salvador.

Increasingly, the Institute's research and teaching activity have broadened within the field of international communication to include not only low cost media development, but also (to address) critical policy questions on how the social and economic benefits of information technology can be achieved within developed and developing countries.

International communication programs at the Institute have been and are continuing to be markedly stimulated by a five-year (1973-1978) institutional grant to the Institute from the U.S. Agency for International Development (AID). Work within the Program on Communication Development sponsored by AID is conducted by Professors Robert Hornik, John Mayo, Emile McAnany, and Everett Rogers of the Communication Department faculty with additional academic and research counsel from Professors Nathan Maccoby, Lyle Nelson and Edwin Parker, also of Communication.

Projects currently in progress in communication and development are:

. . .An investigation of instructional television for rural adults in the Ivory Coast, directed by Emile McAnany;

. . .Research in Guatemala on nonformal education for rural communities, directed by Emile McAnany and Robert Hornik;

. . .An investigation of television news to the U.S. from other nations by Andrew Hardy and James Larson;

. . .Hosting an international conference on communication technology for educational planners, directed by John Mayo and Peter Spain;

. . .The publication of Educational Reform with Television: The El Salvador Experience by John Mayo, Robert Hornik, and Emile McAnany, published in spring of 1976 by Stanford University Press;

. . .Consultation on creating a communication development center in Pakistan by Everett Rogers and Dennis Foote;

. . .Consultation on a radio-centered teacher training program in Nepal by John Mayo;

. . .Travel to India by Clifford Block, Dennis Foote, and John Mayo to determine lessons learned from the satellite instructional television experiment.

These projects will be described in more detail in the following pages.

Newer Perspectives in Communication and Development

During the early 1960s optimism and expectations were running high as to how mass communication might further development in Latin

America, Africa, and Asia. Radio effectively penetrated into the more remote areas of developing countries, and it along with other vehicles of communication demonstrated a potential for helping such nations to reach their development goals. Some researchers referred to the effectiveness of the media on the development process as "magic multipliers."

Communication scholars then thought they knew what development was, how to measure it, and what caused it. Influential books on communication and development were widely read during the 1960s. Scholars were attracted to study development problems in education, agriculture, politics, and health/family planning. A strong impetus was given to cross-cultural and comparative researches in the field of human communication.

Now, in 1976, we take a reflective look. Uses of mass media have indeed made significant inroads over the past decade. New communication technologies, such as broadcasting satellites, have arrived. Government officials in most developing countries have sought to utilize mass communication for development purposes.

But little real development has occurred when measured by just about any standard. The disappointing performance of national development programs, based on the dominant paradigm of economic growth, led to various alternative conceptions of the role of communication in development, and, generally, to a questioning of just what is development.

Until about 1970, the rate of national development was usually indexed as the percentage increase in the gross national product (or per capita income) per year. Development agencies mainly pursued the goal of national economic growth, by promoting industrialization and urbanization. There was little concern for equity in the distribution of the socio-economic benefits of development; at best it was hoped that such benefits would "trickle-down" from the more elite segments to the weaker sections of the population.

This dominant paradigm of development began to shift about 1970. Thereafter, greater equality as in the distribution of information and socio-economic benefits became a major goal of most national development programs and of most bi-national and international development agencies. This new emphasis in development led to the realization that villagers and urban poor should be the priority audience for development programs, and, more generally, that the closing of socio-economic gaps by bringing up the lagging sectors was the main task of development in many nations. Accordingly, integrated rural development programs were launched throughout Latin America, Africa, and Asia; these programs stressed popular participation in self-development planning and execution, and a decentralization of certain of these activities to the village level.

In short, the nature of development was redefined to focus on the closing of rich-poor, urban-rural, and male-female gaps.

World events (the rise of Third World power in the United Nations and its agencies, the "rediscovery" of the People's Republic of China in the West, the world energy crisis, and the concern with equality/distribution issues in development) led to questioning the older paradigm of development.

Gradually, we have come to see that development is simply a purposeful change toward a kind of social and economic system that a country decides it wants. Unlike the pre-1970 era, many development theorists feel it is not possible to specify the exact direction of development. Each nation will develop in its own way.

The newer conceptions of development imply a different and, generally, a wider role for communication. The mobilization of a mass audience through its social organization at the local level depends heavily on communication and in a quite different way than the industrialization-urbanization approach to development.

Communication research has been concerned with the diffusion of innovations in agriculture, health, family planning, and on the role of the media in formal and in nonformal schooling. Contributions of mass media to raising expectations and creating an attitudinal climate for modernization also have been studied.

But little attention has been given to how the mass media can foster mass mobilization for development purposes, to how the audience can control the media institutions through feedback, or to the role of the media in narrowing (or at least in not widening) the gap between the socio-economically advantaged and disadvantaged segments of the total audience.

The last issue points to the increasing attention by communication researchers on the distribution of information within society. Mass media communication campaigns for development usually have their greatest effects on the more advantaged segments (for example, the literate, higher-income, and more urban), thus widening the communication effects gap between the advantaged and the disadvantaged. The communication effects gap need not necessarily occur if precautions are taken to avoid it, such as designing the message to appeal to the particular needs and interests of the disadvantaged. The criteria for communication policy to support development and which also serve to lessen societal inequities are described in Section III of this report.

Everett Rogers edited with the assistance of Douglas Solomon a special issue of Communication Research (volume 3, number 2, April 1976), entitled "Communication and Development: Critical Perspectives." The articles in this issue assess the applicability of U.S.-originated communication models to research and practice, focussing on how communication contributes -- or at least could contribute -- to solving development questions. This issue is currently being republished by Sage Publications in book form.

International Conference on Communication Technology for Educational Planners

The growing interest in development communication and specifically in educational planning prompted the Institute to host a week long gathering of over one hundred participants representing thirty-one

countries to discuss "Communication Policy and Planning for Education and Development." The conference, held on the Stanford campus in July 1976, was sponsored by AID and the National Institute of Education.

Participants were drawn from five occupational groups:

1. National planners who deal with education development, and who are concerned with the planning implications of the use of communication systems.
2. Directors of on-going projects that use one or more communication technologies. The projects ranged in scale: some were concerned with formal education, others with non-formal programs.
3. Researchers of major education technology projects.
4. Representatives from major development assistance agencies.
5. Development scholars.

An increasing number of Third World nations have been using various forms of communication media in their development efforts, especially in education, and there now exists a body of research and evaluation data; although this has been only partially codified and interpreted by researchers and made available to decision-makers. Furthermore, there has recently emerged a new set of policy, planning, research, and evaluation issues. These issues effect the wider application of communication technology to education and information development activities. They include:

. . .changes in goals and models of economic growth, with new emphasis on rural development and social equity;

. . .changes in the available equipment, including the broadcast satellite, audio and video cassettes, and the inexpensive radio receiver;

. . .changes in our knowledge of the importance of educational content and utilization infrastructure to formal, non-formal, and lifelong education and information services.

Two kinds of information can be distinguished therefore: first, the experiences, good and bad, that other nations have actually had with programs that have utilized communication technology and, second, the technological options for communication that are already available or that will soon be developed, along with the probable costs of using these options. This information provided the conference focus.

The goals of the conference were (1) to improve participants' understanding of the policy questions relevant to the use of modern communication technology in the light of the rising demand for education and information services around the world; (2) to improve the quality of decision-making in planning the delivery of education and information services by improving participants understanding of what research and evaluation have found; and (3) to define a research and evaluation agenda based on the common needs of policy-makers.

The program began with presentations and discussion on new concepts of development strategy, then moved on to the implications of these new concepts for communication planning. It then dealt specially with the role of communication in various educational strategies:

two sessions were devoted to discussion of alternative media -- when various media are appropriate -- and the costs of alternative media systems. These presentations consisted of a principal address followed by discussion among all the participants, using the speaker and the panelists as points of reference.

The initial presentations were not country-specific; however, the last two days of the conference were devoted to six case-studies. Among these were the then concluding Satellite Instructional Television Experiment (SITE) in India, the Tanzanian radio campaigns, the health-care delivery satellite system in Alaska, the Kenyan radio programs for teacher-training, and education reforms that use television in Korea and El Salvador.

Forthcoming is a report on the conference, a collection of the papers presented, and a video tape of the major presentations to be produced by and made available through the Institute.

The role of the Institute in the planning and implementing of this conference required considerable preparation and coordination. These efforts resulted in a unique opportunity for leading education and communication specialists to share their experiences.

Satellite Television in India

On July 31, 1976, India concluded its one year Satellite Instructional Television Experiment (SITE) -- a project so great in vision, innovativeness, and administrative complexity that it has been hailed as one of the most important communications'

experiments in history. Throughout the year, development-oriented programs were beamed via NASA's Applied Technology Satellite (ATS-6) to 2400 villages scattered throughout four regions or "clusters" encompassing some of India's most deprived rural areas. The programs served both school and adult audiences and were transmitted in a variety of local languages. The experiment was conceived and managed by the Indian Space Research Organization (ISRO) which, in addition to developing the reception equipment and software necessary for making the project possible, also sponsored a massive feedback and evaluation program. Preliminary research findings are expected from the Indian Government early next year.

In an effort to observe SITE firsthand and, where possible, to draw policy lessons for the U.S. and other nations that are likely to use satellites for development purposes in the near future, Institute members Dennis Foote and John Mayo joined Clifford Block (who was a visiting scholar at Stanford during the past year) on an AID-sponsored visit to India in late July and August. The visit was designed to provide a basic description of SITE (including numbers of villages actually reached, program hours produced and other relevant facts) and to relate the perceptions of SITE managers in a variety of areas including the design and production of programs for diverse rural audiences, the organization and training of production teams, the use of formative evaluation techniques, measurement of village level effects (including attendance,

learning and participation), and a summary of major administrative and operational problems. The team plans to publish its observations in a report which should be available in November 1976.

Ivory Coast: Information Escalation for Rural Adults

Now beginning its sixth year of operation, the Ivory Coast has one of the largest instructional television systems (ITV) for primary grades in the Third World. This year it will reach about 325,000 students covering approximately three quarters of all primary schools in the country.

Since 1974 the Ministry of Education has developed a series of television programs designed primarily for the rural illiterate adult population. These weekly or semi-weekly programs deal with subjects such as clean water, agricultural cooperatives, better agricultural practices and rural savings cooperatives. The broadcasts are usually shown in rural primary schools, where adults congregate for viewing and for discussion afterwards.

The Institute, through AID funding, is collaborating with the Evaluation Unit of the Ministry of Education to evaluate the following: (1) the cost-effectiveness of the primary ITV system, its production, and alternatives for the secondary system in the Ivory Coast; (2) an administrative history of the first two years of the ITV broadcasts; (3) the impact of a televised series on rural voter systems; (4) a four-village study of the TV-animation system; and (5) the role and limits of information for rural development.

Further research will involve cost-effectiveness and the benefit-cost of both formal and nonformal systems, and evaluation of the rural TV discussion groups. A final summary report is expected in December 1977. Members of the Institute collaborating in the field work are Emile McAnany, Frans Lenglet, and Annie Benveniste; Robert Hornik and Peter Spain are providing technical advice.

Guatamala: Planning Research in Nonformal Education

Several members of the research staff at the Institute have been engaged in research to help in the planning of a nonformal education project in the Guatamalan highlands. During the first phase (July-October 1975), the work was sponsored by UNICEF. A first survey of the projects that already were dealing with non-formal education was completed in October by Noreene Janus and Jerry O'Sullivan in collaboration with the Human Resources sector of the National Secretariat for Economic Planning. The second stage, completed last spring, was a survey of 600 men and women in the municipalities of the three highland departments where the project is to begin in January 1977.

In the third stage a seminar on delivery systems was held in July, and a survey was conducted during August to develop a model for the inter-institutional collaboration of various Guatamalan ministeries. Members of these ministeries, which include education, planning, agriculture, and health, also serve on the national board of the project. Work is continuing on the planning and development of feedback and evaluation systems.

Those working on the Guatamalan project are Eduardo Contreras, Robert Hornik, Noreene Janus, Emile McAnany, Eduardo Navas, Jerry O'Sullivan, and Peter Spain.

Uses of Radio in Development

The growing concern with equality issues in development leads to emphasis upon radio as the mass medium that especially reaches villagers and urban poor in Latin America, Africa, and Asia. An informal working conference on research on radio and development was hosted by the Institute in 1976, with eight invited guests plus participation by 32 Stanford faculty and students. A second working conference on the communication effects gap and development will be held later in 1976.

Emile McAnany, Peter Spain, and Dr. Dean Jamison of the World Bank have edited a volume entitled Radio for Education and Development: Case Studies and Syntheses. Now in press, it is expected to be published early in 1977 by Sage Publications. Others in the Institute who have contributed chapters are Edwin Parker, Heather Hudson, Osvaldo Kreimer, Everett Rogers, Juan Braun, and Mark Vermilion.

At the invitation of the government of Honduras and AID, Peter Spain traveled to Honduras in March as a member of an education sector assessment team. Members of the team were to study how improvements can be made in rural education, and, in particular, what media could do in the face of these needs. Honduras has great interest in developing radio as a means of educating its adults, particularly those in rural areas.

In September Peter Spain coordinated an AID-sponsored conference in Managua, Nicaragua on "The Use of Radio as an Instructional Tool in Primary School." The purpose of the conference was to study the Radio Mathematics Project, which is being carried out in nearby Masaya, Nicaragua. Included in the conference were fifteen radio producers from developing countries who shared their related experiences and became acquainted with similar project methods and results. Members of the conference also evaluated the practicality and feasibility of the Masay project's methods and procedures. The project is funded by AID and directed by the Institute for Mathematical Studies in the Social Sciences at Stanford.

Radio for Teacher Training in Nepal

Planning for a proposed national, radio-based, teacher retraining project continued in Nepal throughout the past year. This activity is an outgrowth of recommendations made by Institute members Robert Hornik and John Mayo and other members of the six-person Radio Feasibility Study team that visited Nepal in late 1974 under the auspices of UNICEF, the British Council and AID. Mayo returned to Kathmandu twice in the past year to work with Nepalese officials in the elaboration of a project plan. Coordinated hardware and software development as well as intensified collaboration between various Nepalese agencies will be essential if such a project is to emerge and function effectively in the future.

Communication Development Centre in Pakistan

At the request of the government of Pakistan and AID, Everett Rogers and Dennis Foote served as advisors on the establishment of a

communication development center in Pakistan, through trips in October, February, and June. The center will design, produce, and evaluate multi-media development messages for village audiences, so as to more closely coordinate development communication activities in agriculture, health, family planning, etc. The center's activities will be radio-centered, supplemented with print media.

Analysis of Communication in Rural Areas

Everett Rogers, with the assistance of Noreene Janus, William Richards, and others in the Institute, is investigating the role of interpersonal networks and mothers' clubs in the diffusion of family planning innovations in Korean villages, using data from a 1973 survey of 1,042 married women of reproductive age in 25 villages. This analysis seeks to determine the role of local self-development groups in villages, and how they might be assisted by mass communication.

Emile McAnany, Larry Shore, and Mark Vermilion are reviewing research literature and reanalyzing available data to determine the village audiences for each of the mass media and their characteristics to design more effective means for reaching villagers with development messages.

Robert Hornik travelled to Costa Rica in November for the Costa Rican government and AID. Costa Rica is planning a major rural nutrition project and is investigating ways to integrate the mass media into nutrition education efforts.

SPIRES Development Communication File -- SPIRES DEVCOM

The Institute's development communication file is now available

on SPIRES. This computer-based cataloguing system provides many combinations to search rapidly for documents that fit the user's particular interest. With this capability, a user can look under more than one category at the same time. For example, rather than looking in a card catalogue under "radio" and then sifting through the listed entries for a specific application of radio, the user through SPIRES can search under 'radio'...in 'Latin America'...for 'adults'...for 'out-of-school learning'...in 'rural areas'...for 'literacy and family planning.'

The file is organized by projects that deal with media for development; it does not contain general or theoretical treatments of media's development role. Nor does it contain materials -- books and articles -- that can be found in regular libraries. Each project may have one or more documents that describe that project. The file contains over 300 projects and 700 documents.

Utilization has been gratifying. Scholars from other universities have also used the file quite extensively. Off-campus groups can receive a listing of the contents of the file, and ultimately this printout will be produced in a book-like catalogue at regular intervals.

News Flow to U.S. Television

James Larson and Andrew Hardy are conducting a content-analysis of international affairs coverage on network television evening news broadcasts during the four-year period from 1972 through 1975. Data gathered from a random sample of the broadcasts of all three major networks shows the relative extent of coverage for all countries in the world and several international organizations.

Graduate Programs in Communication Media and Social Change

The two-year Master's program, entitled "Communication Media and Social Change," which began in 1974, graduated its first students in June 1976. Training in the first year consists of courses on communication and development theory, statistics and research methods, with opportunity for study in areas of individual interest. Students in the second year are expected to design and carry out a field research project, returning to Stanford to analyze and prepare their findings in the form of a Master's thesis and, where necessary, take additional course work.

The M.A. program is designed mainly to benefit candidates from Asian, African, and Latin American countries who are presently engaged in communication projects or who are affiliated with agencies or institutions sponsoring communication research.

Each of the four students who received their M.A. in June had completed a master's project: Joaquin Sanchez evaluated a television-based teacher education project in Colombia. Rosita Valencia compared methods of presentation of information to farmers in an experiment in the Philippines. Jeffrey Yu did a case study of a national sanitation campaign in Hong Kong. Isabel Valdes completed the first phase of a consumer satisfaction study for a decentralized health clinic project in San Mateo County. Of the other five students who entered, four will complete their projects this summer, and the fifth is going on in the doctoral program. A complete list of students participating in the program is given Part II.

In addition to the M.A. program, a Ph.D. specialty in Communication Media and Social Change has also been supported by the AID institution-building grant. Those participating are:

. . .Rina Alcalay (Chile), who is teaching at the Universidad Catolica in Santiago, Chile for fall quarter 1976;

. . .Dorothy Barton (U.S.), who assisted with the international conference on communication technology for education planners;

. . .Eduardo Contreras (Chile), who is now gathering data on nonformal education in Guatemala;

. . .Gerry Gil (Philippines), who is completing his dissertation on the utilization of communication research in the national family planning program of the Philippines;

. . .Noreene Janus (U.S.), who returned from six months in Guatemala on the nonformal education project, and is presently investigating factors related to the performance of Korean mothers' clubs in family planning and community development;

. . .James Larson (U.S.), who has been involved in teaching activities and in research on the international flow of television news in the Institute;

. . .Jerry O'Sullivan (Eire), who has been field director in Guatemala for the research on nonformal education in rural communities;

. . .Jorge Schnitman (Argentina), who has been involved in teaching courses on international communication in the Institute.

The Three Community Study

The changes in life style in industrialized countries, coupled with a lack of pre-symptomatic preventive medicine, have resulted in what can only be described as an epidemic prevalance of cardiovascular disease, principally coronary heart disease and stroke. Although the ratios have dropped slightly in the last few years, heart disease is still the biggest killer of people under age sixty-five in the U.S. The associated costs of medical treatment and lost human productivity are immense.

In 1972 the Institute in conjunction with the School of Medicine at Stanford began a field experiment in three northern California communities to study the modification of cardiovascular disease risk factors through communication education. Referred to as the Stanford Heart Disease Prevention Program (SHDPP), it is directed by Professor John Farquhar, M.D. of the Department of Medicine. The SHDPP is supported by grants and contracts from the National Heart, Lung and Blood Institute. Nathan Maccoby is co-director for the behavioral and communication components and Janet Alexander is Director of Media.

Mass media combined with or without face-to-face instruction were the major tactical choices for the field experiment. Included were: (1) a careful analysis of the specific needs and the media consumption patterns of the intended audiences; (2) mass media materials devised specifically to teach behavioral skills, as well as to

perform the more usual tasks of offering information and affecting attitudes and motivation; and (3) both the mass media and, in particular, the face-to-face instruction designed to embody many previously validated methods of achieving changes in behavior and self-control training principles.

The overall goal was to create and evaluate methods for achieving changes in smoking, exercise, and diet that were likely to be eventually both cost-effective and applicable to large population groups.

Three roughly comparable communities in northern California were selected. Tracy was selected as a control because it was relatively distant and isolated from media in the other communities. Gilroy and Watsonville, the other two communities, share some media channels (television and radio), but each town has its own newspaper. Watsonville and Gilroy received different strategies of health education over a period of two years. Gilroy received mass media alone; Watsonville received mass media combined with intensive face-to-face instruction for a subset of the population which was at higher risk of cardiovascular disease than the remaining population. In all three communities random assignment was used to create a true experimental high risk control group of participants receiving media education only with their appropriate controls. Face-to-face intensive instruction was carried out only in the Watsonville high risk sub sample.

Annual interviews in the three communities were designed to measure both knowledge about heart disease and individual behavior

related to cardiovascular risk. The assessment covered several variables. Knowledge of risk factors was measured with a test of knowledge about dietary and other risk factors associated with coronary heart disease based on 25 multiple choice items. Eating habits were assessed in an interview which provided an estimate of daily intake of cholesterol, saturated and polyunsaturated fats, sugar and alcohol. These measures were later validated via predicted changes in plasma cholesterol. Participants were also asked to report their smoking behavior: whether they smoked cigarettes, pipes or cigars and what their daily rate of smoking was. Self-reports of smoking status were validated later through an assay of plasma thiocyanate concentration.

We also collected physiological data from participants at the baseline and one and two year intervals at which the interviews were conducted. In order to control for potential measurement effects, small 'after only' samples were not measured until the end of the first year's campaign.

1. The Mass Media Campaign

For the mass media campaign a coordinated set of messages was prepared to be appropriate for the lay audiences in Gilroy and Watsonville. Over time, these basic messages were transformed into a variety of media (e.g., TV spots, bus cards, etc.) and released to the target audience through a variety of the most generally available media channels. A broad range of materials were produced: for example, about 50 television spots, three hours of television programming, over 100 radio spots, several hours of radio programming,

weekly newspaper columns, newspaper advertisements and stories, billboards, printed material sent via direct mail to participants, posters and other assorted materials. The media campaign began two months after the initial survey and continued for nine months in 1973, stopped during the second survey, and then continued for nine more months in 1974. A very reduced campaign continued in 1975. Given a sizable Spanish-speaking population, a specially tailored campaign was presented in Spanish as well as in English.

2. Intensive Instruction Program

The intensive instruction program was composed of education and persuasion in the context of behavior change and self-control training procedures designed to achieve the same changes in cholesterol and fat consumption, body weight, cigarette smoking and physical exercise that were advocated in the media campaign. The protocols were pretested in a controlled setting before being applied in he field. The basic sequential strategy was to present information about the behavior which influences risk of coronary heart disease, stimulates personal analysis of existing behavior, demonstrates desired skills (e.g., food selection and preparation), guides the individual through tentative practice of those skills and gradually withdraws instructor participation. The expectation was that the behavior would be maintained in the group setting with the instructor. During the initial stage intensive instruction was conducted in group classes and home counseling sessions. During the second year the frequency and amount of contact was successively reduced. A less intensive educational campaign was conducted in the summer months of the second year, which consisted primarily of

individual counseling in difficult problem areas (e.g., smoking and weight loss) and social activities such as parties, picnics and hikes which were intended primarily to encourage participants to maintain changes that had been produced during the first stage of instruction

3. Results

The following table shows how both the media and the media plus face-to-face instruction treatments did have positive effects on almost all relevant variables after both one and two years of campaigning. At the end of the second year, the level of estimated coronary disease risk decreased by 17-18 percent in the treatment community samples whereas it increased by more than six percent in the Tracy sample. At the end of the first year in Watsonville the face-to-face treatment that was provided to some high risk participants enhanced improvement in the total sample (relative to Gilroy where no face-to-face instruction was provided) in smoking, plasma cholesterol and triglyceride concentrations, diastolic blood pressure, and in a composite measure of risk of coronary heart disease. However, by the end of the second year of intervention significant differences in reduction of plasma lipid levels and in risks between participants in Watsonville and Gilroy were no longer present. This indicated that mass media only treatments "caught up" in effects to those due to media plus face-to-face instruction. However, at the end of the third year, there was a moderate regression among the mass media only groups. In the intensive instruction group, no such loss of risk reduction occurred. Differences in smoking and diastolic blood pressure were also observed. Comparison of high risk participants randomly assigned to the face-to-face

Mean Value at baseline (0) and percent change at the end of 1 and 2 years of health education for knowledge, behavior, risk factors and multiple logistic function of risk factors in three communities.

Total Participants

Measurement	Tracy (n=384)			Gilroy (n=397)			Watsonville Recon. (n=423)			Watsonville (n=423)		
	0	1	2	0	1	2	0	1	2	0	1	2
Knowledge of risk factors (25 items)	11.42	1.7	6.3	11.16	18.1**	26.5**	11.15	30.9**††	36.0**††	11.15	36.3**††	40.8**††
Eggs eaten/day	0.76	-14.9	-15.9	0.84	-27.5**	-33.3**	0.79	-37.1**	-42.2**	0.78	-41.8**†	-44.4**
Dietary cholesterol (mg/day)	493.7	-10.2	-6.7	546.4*	-24.6**	-28.0**	521.5	-26.3**	-28.7**	514.4	-29.7**	-31.4**
Dietary saturated fat (g/day)	34.1	-10.1	-4.1	37.7*	-24.2**	-26.0**	36.3	-21.1**	-23.6**	35.9	-24.4**	-26.6**
Dietary polyunsaturated fat (g/day)	8.9	-3.1	-5.7	10.0*	-18.9**	-15.3*	9.4	-8.1†	-12.5	9.6*	-8.3†	-13.6*
Number of cigarettes/day	6.9	-1.1	-2.5	6.8	-2.3	-7.3	6.8	-6.9	-13.7*	7.2	-18.9**††	-24.1**††
Cigarette smokers (%)	29.8	1.8	0.9	36.0	-7.7*	-4.9	31.6	-4.2	-1.7	34.8	-15.0**	-17.0**†
Plasma triglycerides (mg/100 ml)	117.1	13.9	8.0	140.6*	3.3*	-3.1**	136.4*	-4.3**	1.6	138.8*	-6.6**†	-3.7**
Plasma cholesterol (mg/100 ml)	209.0	1.4	3.8	212.3	0.1	0.0**	211.3	-0.3*	1.5**	212.8	-1.4**†	1.1**
Systolic blood pressure (mm Hg)	128.6	3.2	1.3	131.8*	-2.2**	-7.3**	133.0*	-0.5**†	-4.6**††	133.4*	-1.3**	-4.6**††
Diastolic blood pressure (mm Hg)	82.5	-1.2	-0.5	77.2*	4.1	3.3	83.6	-1.1††	-2.4*†	83.3	-1.7††	-2.3**††
Relative weight	1.257	-0.8	-0.3	1.239	-0.8	-0.9	1.223	-0.3	-0.1	1.213*	-0.9	-0.3
Multiple logistic function of risk	0.080	7.7	6.5	0.076	-4.7**	-17.3**	0.094	-4.3**	-16.2**	0.092	-12.9**††	-18.4**

High Risk Participants

Measurement	Tracy (n=95)			Gilroy (n=94)			Watsonville H.C. (n=40)			Watsonville I.I. (n=77)		
	0	1	2	0	1	2	0	1	2	0	1	2
Knowledge of risk factors (25 items)	10.74	1.9	5.2	11.17	16.4**	27.7**	11.25	29.8**	30.4**	10.91	54.2**§§	54.2**§§
Eggs eaten/day	0.88	-15.7	-19.3	0.93	-34.5*	-24.5	0.74	-43.3	-49.3*	0.70	-61.9**	-60.3**
Dietary cholesterol (mg/day)	518.1	-10.3	-7.9	595.8*	-29.0**	-31.2**	498.8	-28.2**	-25.2*	480.5	-41.7**	-37.3**
Dietary saturated fat (g/day)	35.0	-11.0	-5.7	40.3*	-26.2**	-30.8**	35.5	-19.7	-17.0	34.3	-33.6**	-30.0**
Dietary polyunsaturated fat (g/day)	9.3	-0.7	-7.8	9.8	-18.2**	-17.2	8.6	-2.2	-7.6	9.4	-3.0	-8.8
Number of cigarettes/day	13.7	-8.5	-17.2	14.6	-9.8	-13.8	14.2	-5.8	-15.1	14.4	-36.3**§§	-42.3**§§
Cigarette smokers (%)	52.0	-8.2	-12.2	64.9	-14.8	-13.1	52.5	0.0	0.0*	62.3	-31.3**§§	-43.8**§§
Plasma triglycerides (mg/100 ml)	138.1	17.8	7.4	173.1*	5.4	1.8	179.5	-6.1*	5.4	177.6*	-8.9**	-9.0*
Plasma cholesterol (mg/100 ml)	231.8	1.4	2.8	237.0	-0.2	-1.1*	233.0	-3.5**	-1.1*	232.7	-5.0**	-0.8*
Systolic blood pressure (mm Hg)	138.3	1.1	-1.9	148.0*	-4.3**	-10.7**	147.8*	-2.6**	-8.3**	150.3*	-6.4**§	-7.7**
Diastolic blood pressure (mm Hg)	86.3	-4.0	-2.7	83.5	2.0	2.0	91.5	-3.8	-4.2	89.6	-5.2	-3.4
Relative weight	1.300	-1.5	-1.0	1.270	-1.0	-1.0	1.277	-1.0	-0.8	1.226	-3.5*§	-1.5
Multiple logistic function of risk	0.172	4.4	-2.0	0.160	-10.7**	-24.0**	0.199	-7.8	-24.7**	0.183	-29.0**§§	-30.3**

Table -- Footnotes

* Indicates a statistically significant difference ($p \leq 0.05$) for baseline or percent change values at Tracy (control) versus Gilroy or versus Watsonville study groups. Total participant groups (upper table) are compared with Tracy total participants as control; high risk groups (lower table) are compared with Tracy high risk participants as control. A two-tailed, two sample t-test was used to compare baseline values and a one-tailed test was used to compare percent change values.

** As above, but indicates significance at $p < 0.01$.

† Indicates a statistically significant difference ($p < 0.05$) for baseline or percent change values at Gilroy versus Watsonville total participants or versus the Watsonville reconsituted group (upper table).

† † As above, but indicates significance at $p < 0.01$.

§ Indicates a statistically significant difference ($p < 0.05$) for baseline or percent change values for Watsonville intensive instruction group (I.I.) versus Watsonville randomized control (R.C.) (lower table).

§ § As above, but indicates significance at $p < 0.01$.

intensive instruction (Watsonville I.I.) with their high risk control group receiving media treatment only (Watsonville R.C.) reveals that the former initially out-performed the latter in reduction of smoking, systolic blood pressure, relative weight and risk. Only the difference in smoking reduction was observed at the end of the second year.

Examination of data on smoking in the preceding table clearly shows that face-to-face instruction plus mass media results in marked decreases in smoking relative to mass media alone or to no treatment. Self-reports of cessation have been validated by plasma thiocyanate assay. In Gilroy mass media appear to have produced a significantly greater reduction in the prevalence of smoking than was observed in Tracy at the end of the first year. However, at the end of the second year, this difference is no longer significant. Interestingly, at the end of the second year a significant reduction in the average number of cigarettes smoked per day was observed among participants in Watsonville who received media treatment without direct face-to-face instruction, relative to Tracy where no media campaign was conducted. It is therefore clear that media only, while less effective than media plus face-to-face instruction, was effective in producing modest changes in self-reported smoking behavior.

Further analysis of the results for the two years show the extent to which mass media alone and intensive instruction plus mass media effected the increase in knowledge of risk factors such as [illegible]ification of smoking and eating among the participants, how this knowledge changed their behavior and the length of time these changes were maintained or improved. Data are now being gathered to

determine the extent to which these changes have been sustained through a third year.

While the final or third year's effects are still being analyzed, data showing a multiple logistic of risk scores are available. This logistic consists of a combination of behavioral and physiologic measures including systolic blood pressure, plasma cholesterol and smoking. As indicated above, the gains in risk reduction were maintained more or less completely in the intensive instruction plus mass media community. However, in the mass media only town, a small loss occurred in risk during the third year. Similar results also characterize the high risk groups.

Opinion Leadership in the Diffusion of Heart Disease Information

Measuring the role of opinion leadership was conducted during the Three Community Study by Anthony Meyer, Nathan Maccoby, and John Farquhar.

It was hypothesized that a risk reduction intervention utilizing mass media plus change agent instruction would generate more extensive opinion leadership than would an intervention solely consisting of mass media. Random samples of subjects were selected from cohorts of subjects participating in the larger field experiment to represent various treatments. These subjects were interviewed to assess their extent of opinion leadership. In addition, the impact of opinion leadership was assessed by interviewing random samples of persons nominated as having been talked with regarding heart disease. The hypothesis was confirmed. Moreover, the data suggest that opinion

leadership played a major role in the diffusion of heart disease information during the larger field experiment.

A Preliminary Experimental Study of a Televised Program To Assist in Smoking Cessation

Investigation of a two-fold project on using behavioral counseling methods for a televised program to assist in smoking cessation was conducted by Alfred McAlister for his doctoral dissertation, which was completed in spring 1976. The first part of McAlister's study reported on the demonstration of a counseling program to help adults initiate and maintain non smoking. The second part described the development and preliminary evaluation of a mass communication system for delivering that program to large numbers of potential ex-smokers in a natural community setting.

On the basis of previous research and experience, a two-week seven-session counseling program was designed which included initial gradual reduction in the amount of smoking, instruction in non smoking skills such as physical relaxation, four sessions of rapid smoking, training in imaginal revivification of the effects of rapid smoking in response to urges to smoke, counseling in the prediction of situations and thoughts that might trigger a return to smoking and guided practice in appropriate behavioral and cognitive skills for countering those influences.

Analysis of the functions of behavioral counseling suggested that counseling instructions may be effectively delivered through audiovisual media, but that social incentives should be provided if

those instructions are to be consistently followed. If adequate social incentives can be provided by an untrained group leader, assistance in initiating and maintaining non smoking may be delivered on a community-wide basis by supplying televised counseling to groups of potential ex-smokers assisted by volunteer counselors from within the community.

The Problem of Dropout from Treatment for Obesity

Joyce D. Nash completed her dissertation in spring 1976 in which she reported the results of two survey investigations of the problem of dropout of clients from a commercial, weight reduction program. In addition to dropout rate and the characteristics of dropouts, the effect of failure experiences at weight reduction on cognitive processes was investigated. Nash used the notion that individuals who subjectively experience failure in coping with their weight problem come to make certain causal attributions which inhibit motivation to stay in treatment. One of the surveys reported in Nash's dissertation utilized Weiner's attributional model of achievement motivation in an attempt to confirm that differential antecedents do affect the attribution process in such a way as to differentially influence motivation. The results indicated that future research along these lines should be encouraged. Originators of treatment protocols and all researchers were urged to avoid exposing clients or subjects to placebo treatments or weak and poorly thought-out treatments because of the effect of failure experiences. Investigation into new modes of

treatment and treatment delivery, including the use of media and paraprofessionals, was discussed.

The Lipid Research Clinic

One of the major components of the SHDPP is a Lipid Research Clinic. One of its principal tasks is to form one of eleven clinics throughout the U.S. and one in Canada. These clinics are conducting a major trial to determine whether or not serum cholesterol reduction via the administration of a drug (cholestryamine) will reduce the incidence of illness and death due to heart attacks and strokes. A committee has been set up to advise and assist all twelve clinics in the recruitment of subjects and in helping them adhere to the drug-taking regimen. Professor W. Stewart Agras of the Department of Psychiatry chairs the committee. Nathan Maccoby is a member of that committee; Robin Lester and Douglas Solomon of the Institute are research assistants. Jaqueline Dunbar, Gary Marshall, Barbara Newman, and Mel Hovell make up the committee staff. Last year the committee carried out a series of studies designed to aid in the recruitment process. The Institute's staff's role was primarily in the formation and use of media materials in this process. The recruitment of subjects for the trial, which originally experienced considerable difficulty, has been successfully completed. More recently adherence has been the main concern. Solomon is currently conducting an experiment involving cueing devices as an aid to adherence.

Three-Year Training Program for the Prevention of Cardiovascular Disease

One of the more interesting ventures being carried out by the

SHDPP under the National Heart, Lung and Blood Institute is a post-doctoral training grant. This activity consists of a multidisciplinary program of training in the broad field of cardiovascular disease prevention. All trainees have a common core of experience. All participate in the research activities of the SHDPP.

There are three principal tracts for trainees:

1. Cardiovascular epidemiology -- Biometry track: Professor B. W. Brown, Ph.D., Coordinator. Current trainees: Paul Thompson, M.D., Alfred L. McAlister, Ph.D., and Jorge Motte, M.D. (half-time).
2. Nutrition track: Professor Keith Taylor, M.D., Coordinator. Current trainee: Luean Anthony, Ph.D.
3. Behavioral Science track: Professor Stewart Agras, M.D. (Psychiatry) and Nathan Maccoby, Ph.D., Coordinators. Current trainees: Brian Danaher, Ph.D. and Robert Jeffery, Ph.D.

Joyce Nash, Ph.D. is also a trainee whose work combines Track 1 on cardiovascular epidemiology and Track 2 on Nutrition.

Communication for Cancer Control

The monograph, Public Communication Programs for Cancer Control, prepared under contract to the National Cancer Institute by Matilda Butler with the assistance of William Paisley and others, has been published as an NCI report by the Government Printing Office. A related chapter on "The Potential of Mass Communication and Personal Communication for Cancer Control" appears in the book, Behavioral Dimensions of Cancer Control (Joseph Cullen, editor), published in the summer of 1976 by the Raven Press. A related article,

"Communicating Cancer Control to the Public," has been accepted for publication by Health Education Monographs.

COMMUNICATIONS TECHNOLOGY AND PUBLIC POLICY

Because of the variety and availability of communications technology, policy planners in both developing and developed countries are facing increasing pressure to define communication policies that support each nation's plans for education, health and economic development. The Institute's summer conference demonstrated the need in the area of educational planning.

Defining the goals of national development in which communications technology can be most supportive, the role of information as a factor in development, and what information policy choices are open to decision-makers are among the principal points Edwin Parker addressed in a paper he presented to the East-West Center Conference on Communication and Policy and Planning for Development held in Hawaii during April 1976. The paper "Planning Communication Technologies and Institutions for Development" is an outgrowth of an earlier work by Parker entitled "National Development Support Communication" (written with the assistance of Ali Mohammadi for National Iranian Radio Television, January 1976).

In "Planning Communication Technologies. . .," Parker narrows in on the specific communication strategies for development goals, how the choice of appropriate communications technology can effect public policy, and what part institutions play in the design and implementation of communication policy. Parker argues that the

development of a telecommunications infrastructure which permits the bidirectional flow of information throughout a society may be the single most powerful engine of sustained development.

Wilbur Schramm of the East-West Center and former director and founder of the Institute pointed out in his paper "Criteria for Selecting Media Systems" (prepared for the Institute's Conference on Communication Policy and Planning for Education and Development) that questions emanating from developing countries ten years ago were on how to apply such a medium as television once it was installed. Now the questions center on defining the respective country's needs and seeking advice on which media can help in meeting them.

Parker suggests that radio has many technical advantages when compared to print media or to television. He has recently co-authored with Professor Bruce Lusignan of the Department of Electrical Engineering a chapter entitled "Technical and Economic Considerations in Planning Radio Services" for the World Bank sponsored volume on radio to be published by Sage Publications. Major problems in planning radio services may lie in institutional coordination with telecommunications authorities.

Heather Hudson and Parker elaborate upon the importance of a telecommunication infrastructure in an article published by IEEE Transactions on Communications (October 1975). The need for a telecommunication infrastructure is two fold: (1) communication is a crucial requirement for the planning and operation of any economic system; and (2) communication is also a powerful tool for socio-political

organization and the extension of basic social services. The article "Telecommunication Planning for Rural Development" further stresses that the mobilization of rural residents to improve the quality of rural life without mass migration to urban slums may be possible through effective use of telecommunication services.

Telemedicine in Alaska

In February 1976 the Institute published the final report on the evaluation of the biomedical demonstration in Alaska, using the Applications Technology Satellite-Six (ATS-6). The report, Telemedicine in Alaska: The ATS-6 Satellite Biomedical Demonstration was prepared by Dennis Foote, Edwin Parker and Heather Hudson under contract to the Lister Hill National Center for Biomedical Communication.

The primary purpose of the demonstration project was to explore the potential of satellite video consultation to improve the quality of rural health care in Alaska. As part of the project, a centralized, computer-based, problem-oriented medical record system was introduced The demonstration was conducted in the Tanana Service Unit of the Alaska Area Native Health Service.

Satellite ground stations permitting both transmission and reception of black and white television were installed at four locations in the Tanana Service Unit -- Fairbanks, Fort Yukon, Galena, and Tanana. Receive-only television capability was installed at the Alaska Native Medical Center in Anchorage. All five sites had two-way audio capability.

Two of the locations were in communities without a resident physician -- Fort Yukon and Galena. In most of the consultations, patients at these two remote sites were seen by physicians at the Service Unit Hospital at Tanana or by medical specialists in Anchorage. In some consultations, patients at the Tanana Hospital were seen by specialists in Anchorage. Simultaneous two-way video capability was not available, although the one-way video could be switched to permit transmission from any site except Anchorage. Transmission from the hospital to the remote clinics was used primarily for educational programs.

The results of this evaluation should be interpreted in context. The demonstration was an exploratory field trial, not a rigorous experiment. A relatively small patient population was served and the communities involved are not completely typical of other settings, even in Alaska. The availability of the satellite limited the demonstration to a fixed schedule of three hours per week for a period of nine months. There were concurrent changes in the health care system and the social environment that might distort or obscure the effects of the video consultation service. These constraints complicated the conduct of the demonstration and its evaluation; they should also guide interpretation of the results. Despite the limitations, much valuable information about the difficulties and advantages of video teleconsultation and its possible implementation in Alaska was gained. Introduction of the telemedicine service into the realistic setting of an on-going health care delivery system in Alaska permitted valuable experience to be gained that

would not have been possible in a more tightly controlled experiment in a different setting.

The report draws six major conclusions: (1) small ground stations for the use of audio and black and white televised satellite transmission are reliable; (2) most medical consultations can be satisfactorily conducted using satellite video channels; (3) satellite video consultation can be successfully carried out by health care providers at all levels of training; (4) video transmisson was essential for presenting medical problems in 5-10 percent of the cases, otherwise there is little measurable difference between the effect of video and audio consultation; (5) health care providers felt that audio satellite transmission was more economical and more reliable in health care delivery; and (6) the computerized problem-oriented medical record system was considered a valuable addition to the health care delivery in Alaska.

The full report concludes with a chapter titled "Implications for Operational Service and Future Research." It reports technical possibilities and cost estimates for possible future operational systems, so that policy makers can review for themselves both the potential benefits and the probable costs of possible next steps. The most promising areas for further research are also discussed. In the light of these technical, cost, and research considerations, nine major and fourteen minor recommendations are made in that chapter.

Copies of Telem[redacted]e in Alaska are available from the Institute and also from the National Technical Information Service; the details for ordering from them are given in Part II.

ATS-1 in Conjunction with ATS-6

Rina Alcalay compiled a report on the use of satellite radio for health improvement in remote Alaskan villages during the period of the ATS-6 video telemedicine project which describes the effects of using the experimental ATS-1 two-way voice communication simultaneously with ATS-6 video from September 1974 to May 1975. The ATS-1 communication satellite has been used daily from May 1971 to August 1973 to provide two-way radio contact between native health aides in remote Alaskan communities and a Public Health Service doctor located in Tanana, Alaska.

Economics of Computer Networks

Funded by a grant from the National Science Foundation, Economics of Computer Networks is an interdisciplinary program which draws on faculty and students from Communication, Economics, Engineering-Economic Systems, Computer Science, and Electrical Engineering to perform studies in the field of computer networking in support of the public analysis. Professor Donald Dunn of Engineering-Economic Systems is the principal investigator and Edwin Parker serves on the executive committee. Studies of network technology and cost, services, demand for services, patterns of industrial response to demand, and societal effects of the provision of services are integrated into the program.

The program is directed to analysis of systems, services, demand, patterns of industrial response, and societal effects. In particular, the contributions of Edwin Parker, William Richards, Jr., Marc Porat, and Michel Guité include an analysis of the economics of information, developing a communication networking program for large organizations, and an analysis of Canadian cable television. Parker's keynote address to the Organization for Economic Cooperation and Development (Paris, February 1975) entitled "Social Implications of Computer/Telecommunication Systems" will be published in Telecommunication Policy in December 1976.

During spring 1976 William Richards, Jr. completed his dissertation on "A Coherent Systems Methodology for the Analysis of Human Communication Systems." This past summer Marc Porat completed an extensive study for his dissertation entitled "The Information Economy". Michel Guité is nearing completion of his dissertation entitled "Telecommunication Policy in Canada: A Cable Television Case Study."

The program on the Economics of Computer Networks is not primarily intended to provide an analysis of specific policy alternatives, but rather is intended to suggest areas in which change is likely to occur and to forecast the ways that change will occur in the absence of new policy decisions. The principal output of the project is reports and papers written in a form intended to be useful to decision makers in industry and government. Both an early warning system to alert policy makers to potential difficulties and suggestions of areas in which new opportunities for policy

initiatives exist will be outputs of this program. A long-term continuing view is intended rather than an in-depth snapshot of the entire field as it appears today.

Networking can be thought of as creating a cost-sharing mechanism for information services. For example, a network connecting users throughout an industry such as the airline industry allows the cost of developing and providing new information services to be shared among users throughout the entire industry. The expanded market created by such systems allows either larger computers or more small computers to be used, with accompanying economies of scale. The larger market also encourages the development of new services of interest to special groups of users, with accompanying economies of specialization. The user experiences these economic benefits in the form of newer and more economical services that may be more valuable to him than previously available services.

William Richards, Jr. has been working on ways of describing communication networks that emphasize the actual use of the network by particular individuals to communicate with other members of the network. This type of network analysis can be used in formal organizations to study either organizational behavior or the communication behavior of individuals within the organization. It could be used in non-organization settings to study actual communication or information-flow networks as they exist in the field.

Here we could be looking, for example, at the communication networks that have developed in rural or urban communities, or perhaps

at the networks through which technical or medical information is diffused from scientists to the final users. Ideally, political and economic considerations would be related to network characteristics, in order to flesh out the model built on the network analysis.

There are two stages to the developmental work which Richards has begun. First, the explication of a suitable paradigm that includes the essential logical aspects of multiple leveled hierarchical systems; and second, the development of the analytic tools that will be needed to perform the analysis of empirical data. The conceptual model for the paradigm is a general systems model, expanded to include not only the system being observed, but also the observer and processes of observation and description. This expansion is felt to be necessary because of the logical complexity of the research problems. The very nature of the observation and description processes, together with the form of complex systems, both limits and directs the process of investigation. The analytic tools that are being advanced are structured to work within the context provided by the logical analysis. Two of these tools are already in fairly good working order. One is a set of statistical measures useful in describing structure in very large systems; the other is an algorithm and computer program to perform network analysis on systems having as many as 4,095 members.

A report describing network analysis is now available from the Center for Interdisciplinary Research at Stanford. It is entitled "A Coherent Systems Methodology for the Analysis of Human Communication

Systems" by William D. Richards, Report No. 25, Program in Information Technology and Telecommunications, Center for Interdisciplinary Research, Stanford University, March 1976.

Marc Porat's research on the economics of information can be broken down into two parts. The first is to define and measure the two information sectors which comprise the information based-economy in the U.S. The production, processing and distribution of information goods and services accounted for 25 percent of the Gross National Product (GNP) in 1967. Included in this "primary information sector" are goods such as computers, communication equipment and books; and services such as telecommunications, the media, education and research and development, and selected business services. In addition, information services produced by non information firms (and governments) for own-consumption accounted for 21 percent of the GNP. Included in this "secondary information sector" are all non market information services, such as management, secretarial support, accounting, etc. The secondary sector is the information overhead necessary to organize firms and coordinate markets. By 1970, the wage bill paid to all "information workers" exceeded that of the agricultural, industrial and service occupations combined.

The second part of Porat's research is concerned with building the sectors into a Leontieff input-output model and examining their internal structure and their interactions with other industries in the economy. Porat's dissertation "The Information Economy" will be published toward the end of 1976 by the Program in Information

Technology and Telecommunication, Center for Interdisciplinary Research at Stanford.

Michel Guité's study of Canadian cable television (CATV) policies include: (1) What new broadcast and information services are being proposed for use on CATV in Canada; (2) Who has regulatory authority over these; (3) How much overlap should there be between CATV and common carriers; (4) How can the new Canadian hybrid communication satellite be used for CATV interconnection in Canada. The implications of these policies for the future development of this part of the Canadian information sector are developed in Guite's dissertation.

The CBC and the Public

Communication research of the operation of broadcasting institutions at the management level has been limited, principally because of severe access and disclosure problems. Through a doctoral fellowship from the Canadian Council Bruce McKay undertook a participant-observer case study based on post-experience analysis of observation of the CBC English Television for five months as a trainee producer in 1970, for six months as an associate producer in 1971, and for two years as a research associate to the managing director of English Television in 1972-1974. In addition to direct observations, press comments and public domain documentation, principally related to the 1974 re-licensing of the English Television network by the Canadian broadcasting regulatory agency, are incorporated in McKay's dissertation entitled "The CBC and the Public:

Management Decision Making in the English Television Service of the Canadian Broadcasting Corporation, 1970-1974."

It has been published in a limited amount and inquiries concerning its availability should be addressed to Dr. Bruce McKay, 50 Alexander #704, Toronto, Ontario M4Y 1B6, Canada.

An Information System for National Iranian Radio Television

Edwin Parker and Henry Breitrose have been collaborating with Professor Bruce Lusignan and Dr. Larry Brekka of Stanford's Communication Satellite Planning Center in connection with a project for National Iranian Radio Television (NIRT). They have prepared detailed plans and recommendations for an NIRT information system as one part of a larger project concerned with planning a communication satellite system and its uses for national development, including educational television.

Video Compression to Increase Channel Capacity of Satellites

A method for compressing video channels has been developed at NASA-Ames, the net result of which is to increase the channel capacity of existing video links, such as satellites and microwave relays. The potential utility is considerable; a satellite with the capacity to relay 20 video channels could use this new technique to relay 100, 200 or more channels. The economic benefits in terms of channel costs are, of course, obvious.

The 'trick' of this method is to relay only the essential information needed to reconstruct the television image. In ordinary transmissions a large amount of information is repeated (redundancy); the

video compression technique capitalizes on these redundant patterns and relays a smaller amount of information than would be required to relay each image again and again.

Edwin Parker, Heather Hudson, Georg Lindsey and Richard Zackon have been conducting studies on evaluating the use of video-compressed television images. Zackon recently completed a subjective evaluation of video compression for NASA-Ames which contains technical refinements over previous compression techniques evaluated earlier by Lindsey and Hudson.

Evaluation of PBS's "Over Easy"

Donald Roberts is engaged in conducting the national evaluation of the pilots for a new television program, "Over Easy", that is particularly interested in attracting an audience of people 55 and over. The program development is funded by the Corporation for Public Broadcasting (PBS) and the Department of Health Education and Welfare Office of Aging. Roberts has designed both formative and evaluative research including focus groups that have engaged in small group discussion after viewing videotapes of the programs and several telephone surveys to precede and follow broadcasting of the programs. Evaluations of these two pilot episodes are being conducted in seven sites throughout the U.S.

Television and the Black Community

Kwame N. Bowmani (Kenneth E.B. Bowman) completed his dissertation in August 1976 on "Black Television and Domestic Colonialism." Bowmani investigated whether Black television tends to either foster, preserve or equalize the existing unequal relationship between the marginal or lower-status Black community and the higher-status, dominant White society. Bowmani's research included the following: (1) formulating a more adequate conceptual framework for examining television and social change through a review of the literature on mass media and national development; and (2) identifying some of the basic elements in the relationship between television and the Black community.

Two investigations of Blacks and TV were presented. The first, "One Week of Black TV," systematically examined the role or portrayal of Blacks on prime-time, commercial network television. The second investigation, a case-study type project, examined the role or function of television in relation to the Black community. Both investigations were conducted from the perspective of domestic colonialism theory. Domestic colonialism was defined as a highly unequal and exploitative relationship imposed and controlled by a dominant White society or group over a subordinate racial or cultural group within a country or territory.

Women and the Mass Media

Matilda Butler and William Paisley have completed a book entitled Women and the Mass Media: Sourcebook for Research and Action. The book integrates three mainstreams of communication research -- content analysis, institutional analysis, and audience analysis -- in a review of the treatment of women in and by the mass media.

Women and the Mass Media covers:

I. Antecedents
   1. Racism and Sexism
   2. Language and Image
   3. Mass Communication

II. Media Content
   4. Techniques of Content Analysis
   5. Women in Media Content
   6. The "Consciousness Scale"

III. Media Institutions

7. Techniques of Institutional Analysis

8. Women and Media Institutions

IV. Media Audiences

9. Techniques of Audience Analysis

10. Women in Media Audiences

11. Children and Media (by Suzanne Pingreee and Robert Hawkins)

V. Indications for Research and Action

12. Indications for Productive Research

13. Indications for Productive Action

Publication of Women and the Mass Media is being negotiated.

Women and Communication

A series of convention presentations and journal publications have been the focus of the past year's research on women and communication. In April 1976 Matilda Butler presented a paper on "Professional Concerns of Women in International Communication Associations: Results of a Survey" at the International Communication Association's annual convention. The paper, co-authored by Butler, William Paisley, and Suzanne Pingree, resulted in a "Bill of Rights" adopted by the Committee on the Status of Women and was affirmed by the ICA's governing board.

Two articles have been completed. One, "Status of Professional Couples in Psychology" has been accepted for publication by Psychology of Women Quarterly. The paper, by Butler and Paisley, analyzes educational background and current positions of professional couples in the American Psychological Association in 1958 and 1973.

A second article, authored by Butler, Pingree, and Paisley, "Women Doctoral Students in Mass Communication," has been submitted to Journalism Educator. The paper is a reanalysis of the Chaffee and Clark (1975) study of recent communication Ph.D.'s.

SPIDOC: Computer-based Authoring and Dispersal of Textual Knowledge

Jesse Caton completed his dissertation on the design and implementation of a system for the computer-based authoring and dissemination of textual knowledge. SPIDOC (System for the Preparation and Inquiry of DOCumentation) is a language for representing text which uses the sentence, the paragraph, and the section as well as special purpose textual forms and structures. To the reader at the computer terminal, the system appears as a reference aid capable of suggesting sections to be read or responding to specific requests; of displaying full or partial sections in different meaningful sequences; and of coordinating with or creating printed or published versions of the same material.

A wide range of reader needs can be met because the author is given a representation which embodies different but complementary approaches to organizing textual knowledge. Hierarchical organization is emphasized because of its traditionally acknowledged superiority for orienting readers, whose passive recognition ability invariably exceeds their active request vocabulary, often by orders of magnitude. Other organizational structures are provided which facilitate temporal, categorical, key-term, and network forms of document access, all of which are needed to create useful printed documents as well as online access.

Knowledge Production and Utilization

An overview of "knowledge production and utilization in education," prepared by Matilda Butler, William Paisley, and Karen Shapiro under contract to the National Institute of Education, was published as The Status of Educational Research and Development in the United States: 1976 Databook and released by the Government Printing Office in August 1976. This overview will serve as the first of a series of periodic status reports and planning documents commissioned by the National Institute of Education.

A separate technical report on conceptual models and data series underlying the 1976 Databook, prepared chiefly by Karen Shapiro, is available through the Institute.

William Paisley prepared a synoptic introduction for a monograph entitled Information Needs and Uses, forthcoming from the American Society for Information Science. The monograph compiles chapters on information needs and uses from a decade of Annual Reviews of Information Sciences and Technology, including Edwin Parker's 1973 chapter and Paisley's 1968 chapter.

PART II

DISSSERTATIONS PUBLICATIONS PERSONNEL

DISSERTATIONS

The following dissertations were completed during 1975-1976:

ALICE E. AHLGREN
Cost/Utility Implications of Providing On-Line Search Services Through Public Libraries

KWAME BOWMANI
Black Television and Domestic Colonialism

JESSE CATON
Structuring Textual Information via Computer for Flexible Medium, Format and Content Utilization

PASQUAL DEAN CHAVERS
Social Structure and the Diffusion of Innovations: A Network Analysis

MARY M. CONNORS
Video Technology in the Courts: The Effect on Jurors

DENNIS FOOTE
A Case Study Evaluation of a Satellite Video Telemedicine Project in Rural Alaska

ANITA RAE SIMPSON GOODELL
The Visible Scientists

OSCAR H. GANDY, JR.
Instructional Technology: The Reselling of the Pentagon

J. C. MICHEL GUITÉ
Telecommunication Policy in Canada: A Cable Television Case Study

FELIX F. GUTIERREZ
Spanish-Language Radio and Chicano Internal Colonialism

JOHN K. JENNINGS
The Regulators and the Regulated: A Study of Broadcasters' Perceptions of Federal Communications Commission Members and FCC Voting Behavior

SUSAN KREIGER
COOPTATION, A History of a Radio Station

OSVALDO KREIMER
Telecommunication in Medicine: Interactive Satellite Radio for Health Care in Village Alaska

EMMETT LAMPKIN
Adolescent Television Use as a Possible Socialization Agent: A Cross-Cultural Comparison

DAVID G. MARKLE
Development of a Methodology of Formative Evaluation

ALFRED McALISTER
Prevention of Cardiovascular Disease Through Behavior Change

ROBERT BRUCE McKAY
The CBC and the Public: Management Decision Making in the English Television Service of the Canadian Broadcasting Corporation, 1970-1974

ANTHONY J. MEYER
Generating Unbiased Diffusion of Preventive Health Innovations

SUSAN H. MILLER
Congress and the News Media: Coverage, Collaboration and Agenda-Setting

JOYCE DONOVAN NASH
The Problem of Dropout from Treatment for Obesity

RAYMOND PANKO
Pay Television and Free Television: A Policy Assessment Based upon a Projection of Future Consumer Demand for Pay Television

SUZANNE PINGREE
A Developmental Study of the Attitudinal Effects of Nonsexist Television Commercials Under Varied Conditions of Perceived Reality

JOHN POLICH
Mass Media Accountability and Management: How Executives Define Decision Factors in the American Newsroom

MARC URI PORAT
The Information Economy

WILLIAM D. RICHARDS, JR.
A Coherent Systems Methodology for the Analysis of Human Communication Systems

SUSAN H. RUSSELL
Insult, Aggressive Modeling, and Vicarious Reinforcement as Determinants of Adult Aggression

JORGE REINA SCHEMENT
Primary Spanish Language Radio as a Function of Internal Colonialism

Master of Arts in

COMMUNICATION MEDIA AND SOCIAL CHANGE

The following received their M.A. in June 1976:

JOAQUIN SANCHEZ, Colombia
Evaluation of 'Educadores de Hombres Nuevos': A Television Program for Training Teachers

MARIA ISABEL VALDES, Chile
Attitude Study Towards an Innovation: South San Mateo County Decentralized Health System (MRP)

ROSITA VALENCIA, Philippines
Relative Effectiveness of Visual and Audiovisual Media in Teaching Technical Information to Rice-growing Farmers in Laguna Province, Phillippines

JEFFREY YU, Hong Kong
Evaluation Research on the Keep Hong Kong Clean Campaign 1972-1975

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Listed below are those who are completing the program:

Nasrin Ameri, Iran

Annie Benveniste, France

Jeff Charles, Dominica

Tania Galvan, Mexico

Naswil Idris, Indonesia

Herbert Koeneke, Venezuela

Farida Merchant, Pakistan

Alberto Montoya, Mexico

Fernando Morett, Mexico

Eduardo Navas, Guatemala

John Nkinyangi, Kenya

Luis Antonio de Noriega, Mexico

Laurence Shore, South Africa

Nan Suchato, Thailand

Maria Tarango, United States

Mark Vermilion, United States

Joseph Yu, Hong Kong

RECENT PUBLICATIONS

Listed below are current books, articles, reports and papers presented recently by members of the Institute. The books and monographs in print are available either through the given publisher or through commercial book sellers. Reprints of articles and papers are generally limited and in some cases are not available; however, inquiries can be directed to the individual authors in care of the Institute. Reports published by the Institute for Communication Research are available directly from the Institute for a nominal postage and handling charge. Inquiries about reports published elsewhere should be directed to the individual author at the Institute or to the source given.

Books and Monographs

Butler, M., Paisley, W. et al. Public communication programs for cancer control. Washington, D.C.: National Cancer Institute, 1976.

Jamison, D., McAnany, E. & Spain, P. (Eds.) Radio for education and development: Case studies and syntheses. Beverly Hills, California: Sage Publications, in press.

Mayo, J., Hornik, R. & McAnany, E. Education reform with television: The El Salvador experience. Stanford, California: Stanford University Press, 1976.

Paisley, W., Butler, M. & Shapiro, K. The status of educational research and development in the United States: 1975 data book. Washington, D.C.: National Institute of Education, 1975.

Rivers, W. L. Finding facts: Interviewing, observing, using reference sources. Englewood Cliffs, New Jersey: Prentice Hall, 1975.

Rivers, W. L. Writing: Craft and art. Englewood Cliffs, New Jersey: Prentice-Hall, 1975.

Rivers, W. L. Free-lancer and staff writer. (2nd ed.) Belmont California: Wadsworth Publishing, 1976.

Roberts, D. (with Comstock, G., Armor, D., Chaffee, S., Katzman, N., McCoombs, M.) The fifth season; How TV influences the way people behave. Santa Monica, California: The Rand Corporation, in press.

Rogers, E. M. & Agarwala-Rogers, R. Communication in organizations. New York, Free Press, 1976.

Books and Monographs

Sterling, C. H. & Haight, T. R. The Aspen guide to communication trends: The mass media (Vol. 1). New York: Praeger, in press.

Articles

Butler, M. & Paisley, W. The potential of mass communication and personal communication for cancer control. In Cullen, J. (Ed.) Behavioral Dimensions of Cancer Control, Raven Press, 1976.

Butler, M. & Paisley, W. Status of professional couples in psychology. Psychology of Women Quarterly, in press.

Haight, T. R. & Brody, R. A. The mass media and presidential popularity: Presidential broadcasting and the news in the Nixon administration. Communication Research, in press.

Hawkins, R. P., Pingree, S., & Roberts, D. F. Watergate and political socialization: The inescapable event. American Politics Quarterly, 1975, 3, 406-422.

Horn, B. R. & Rogers, E. M. Interpersonal communication of environmental education. In Kardash, W. J. (Ed.). What Makes Education Environmental? Washington, D.C. Environmental Educators, 1975.

Hornik, R. Television background characterisitcs and learning in El Salvador's educational reform. Instructional Science, 1975, 4, 293-302.

Hornik, R. Useful evaluation designs for evaluating the impact of distance learning systems: Methodology. Educational Broadcasting International, March 1976, 9.

Hudson, H. E. & Parker, E. B. Telecommunication planning for rural development. IEEE Transactions on Communications, October 1975, Comm-23, 1177-1185.

Jouet, J. Ivory Coast: The out-of-schcol television project: A critical analysis. LACDES Quarterly, March 1976, 5, 42-50 (Available through SIDEC, Stanford University).

Maccoby, N. & Farquhar, J. W. Communication for health: Unselling heart disease. Journal of Communication, Summer 1975, 25:3, 114-126.

Mayo, J., Hornik, R., McAnany, E. & Ingle, H. Aspiraciones academicas y professionales de los estudiantes del terces ciclo en El Salvador. Revista del Centro de Estudios Educativos, 1975, no. 1.

Articles

Mayo, J., McAnany, E., & Klees, S. The Mexican telesecundaria: A cost-effectiveness analysis. Instructional Science, October 1975, 4, 193-236.

McAlister, A. L., Farquhar, J. W., Thoresen, C. E., & Maccoby, N. Behavioral science applied to cardiovascular health: Progress and research needs in the modification of risk-taking habits in adult populations. Health Education Monographs, Spring 1976, 4, 45-74.

McAnany, E. Radio's role in non-formal education: An overview. In Jamison, D., McAnany, E. & Spain, P. (Eds.) Radio for Education and Development: Case studies and syntheses. Beverly Hills, California: Sage Publications, in press.

McAnany, E. Standing on the shoulders of giants or do we learn from the past (or present) in ETV evaluations? Bulletin of Educational Research, in press.

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McKay, B. Financing: Problem or symptom. In Nyhan, M. J. (Ed.) The Future of Public Broadcasting. New York: Praeger, 1976, 141-161.

McKay, B. Public broadcasting financing: Problem or symptom? Public Telecommunications Review. March-April 1976, 4, 29-35.

Miller, S. Changing news coverage of women. The Bulletin (of the American Society of Newspaper Editors), June-July 1975.

Miller S. The content of news photos: Women's and men's roles. Journalism Quarterly, Spring 1975, 52, 70-75.

Miller, S. Women and the news. The Bulletin (of the American Society of Newspaper Editors), October 1975.

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Morrison, D. E., Rogers, E. M., Kumar, V. & Fliegel, F. C. Stratification and risk-taking: A further negative replication of Cancian's theory. American Sociological Review, in press.

Parker, E. B. Social implications of computer/telecommunication systems Telecommunication Policy, in press.

Parker, E. B. Networks for an information society. Bulletin of the American Society for Information Science, June-July 1975, 2, 12-14.

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Parker, E. B. Who should control society's information resources? In Kochen, M. (Ed.) Information for Action: From Knowledge to Wisdom. New York: Academic Press, Inc. 1975, 21-31.

Parker, E. B. & Lusignan, B. Technical and economic considerations in planning radio services. In Jamison, D., McAnany, E. & Spain, P. (Eds.) Radio for Education and Development: Case Studies and Syntheses. Beverly Hills, California: Sage Publications, in press.

Richards, W. Computers and communication research. In Hanneman, G. J., & McEwen, W. J. (Eds.) Communication and Behavior. Reading, Massachusetts: Addison-Wesley Publishing Co., 1975.

Rivers, W. L. From finding facts to three death journeys, roundtrip. CCJA Journalist, Summer 1976.

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Rogers, E. M. & Danziger, S. Non-formal education and communication technology: The second dimension of development and the little media. In La Belle, T. J. (Ed.) Educational Alternatives in Latin America: Social Change and Social Stratifications. Los Angeles, University of California at Los Angeles Press, 1975.

Rogers, E. M. The anthropology of modernization and the modernization of anthropology. Reviews in Anthropology, 1975, 2, 345-358.

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Rogers, E. M. and Solomon, D. S. Traditional midwives and family planning in Asia. Studies in Family Planning, 6, 126-133.

Rogers, E. M. New perspectives on communication and development: Overview. Communication Research: An International Quarterly, 1976, 3, 99-106.

Rogers, E. M. Communication and development: The passing of the dominant paradigm. Communication Research: An International Quarterly, 1976, 3, 213-240.

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Shapiro, K. R. An overview of problems encountered in aptitude treatment interactions (ATI) research for instruction. AV Communication Review, Summer 1975, 23, 227-241.

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Rogers, E. M. et al. Communication networks in family planning diffusion in two Korean villages. Stanford, California: Stanford University, Institute for Communication Research, 1976.

Rogers, E. M. Extending the agricultural extension model. Stanford, California: Stanford University, Institute for Communication Research, 1976.

Rogers, E. M. and Solomon, D. S. Traditional midwives as family planning communicators in Asia. Honolulu, Hawaii: East-West Communication Institute, Case Study No.1, 1976.

Rogers, E. M. The diffusion of IMPACT innovations to university professors. Ann Arbor, Michigan: University of Michigan, Department of Journalism and Program in Mass Communication Research, 1975.

Rogers, E. M. & Pareek, U. Acceptability of fertility regulating methods: A synthesis of research literature. Geneva: World Health Organization, Human Reproduction Unit, 1976.

Papers

Agarwala-Rogers, R. & Rogers, E. M. The impact of EXPER SIM: The diffusion and implementation of a teaching innovation among university professors. Paper presented at the American Educational Research Association, San Francisco, April 20, 1976.

Butler, M., Pingree, S., Paisley, W. Professional concerns of women in international communication associations: Results of a survey. Paper presented to the International Communication Association, 1976.

Chavers, D. P. Needs assessment in bilingual programs: Analyzing relevant factors in Native American communities. Paper presented at First Native American Bilingual Education Conference. June 24-25, 1976 (sponsored by Bay Area Bilingual Education League, Berkeley, California).

Gandy, O., Haight, T., Schement, J.R., Soriano, E. & Gutierrez, F. F. Citizen action and broadcaster interests: The record of the FCC. Paper presented at the Annual Convention of the International Communication Association, Portland, Oregon, April 1976.

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Haight, T. R. & Brody, R. A. The impact of events, presidential broadcasting, and presidential popularity: Evidence from the Johnson and Nixon Administrations. Paper presented at the Conference on Political Alienation and Support, Center for Advanced Study in the Behavioral Sciences, Stanford, California, May 27, 1976.

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Hudson, H. E. (with Coll, D., Lumb, D., & Guild, P.). College curriculum-sharing via CTS. Paper prepared for the Conference of the American Institute of Aeronautics and Astronautics, Denver, Colorado, July 23, 1975.

Hudson, H. E. Communication and the development of rural Alaska. Paper presented at the Alaska Rural Media Conference, Fairbanks, Alaska, July 22, 1975.

Maccoby, N. The Stanford Heart Disease Prevention Program. Paper presented at the Steinhart Symposium on Consumer Behavior in the Health Marketplace. Lincoln, Nebraska, March 10, 1976.

Maccoby, N. The mass media with and without face-to-face implementation in heart disease prevention behavior. Plenary address to the First International Congress on Patient Counseling, Amsterdam, April 21, 1976.

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Miller, S. Changing news coverage of women: How editors view the problem. Paper delivered at Annual Meeting of the Association for Education in Journalism. Ottawa, Canada, August 1975.

Miller, S. & Drew, D. Sex stereotypes and reporting. Paper delivered at Annual Meeting of the Association for Education in Journalism, College Park, Maryland, August 1976.

Nelson, L. Television as an instrument of education -- its advantages, possibilities and risks. Address to the 40th anniversary of the founding of the Autonomous University of Guadalajara, March 6, 1975.

Parker, E. B. Planning communication technologies and institutions for development. Paper delivered to East-West Center Conference on Communication Policy and Planning for Development, Honolulu, Hawaii, April 5 - 10, 1976.

Rogers, E. M. & Meyer, A. J. Communication aspects of rural development. Paper prepared for Academy for Educational Development, Washington, D.C., in press.

Rogers, E. M. Social marketing strategies for new product diffusion. Paper presented at Albert Wesley Frey Lecture, University of Pittsburg, March 8, 1976.

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Rogers, E. M. Innovation in organizations: New research approaches. Paper presented at the American Political Science Association, San Francisco, September 2-5, 1975.

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Rogers, E. M. Management of family planning IEC activities. Paper presented at the United Nations Asian Centre for Development Administration, Expert Panel on Administrative Issues in Family Planning Programmes, Kuala Lumpur, 1975.

Rogers, E. M. A personal history of research on the diffusion of innovations. Paper presented at the Ninth Paul D. Converse Marketing Symposium, Urbana, Illinois, May 16-17, 1975.

Rogers, R. M., et al. Mothers' clubs in the diffusion of family planning ideas in Korean villages: An illustration of network analysis. Paper presented at the American Association for the Advancement of Science, New York, 1975.

Rogers, E. M., et al. Network analysis of the diffusion of family planning innovations over time in Korean villages: The role of Mothers' clubs. Paper presented at the Population Association of America, Seattle, Washington, April 17-19, 1975.

Rogers, E. M. et al. The diffusion and adoption of GBF/DIME among regional and local governments. Paper presented at the Urban and Regional Information Systems Association, Atlanta, Georgia, 1976.

INSTITUTE PUBLICATIONS IN ERIC

A selected list of Institute publications in ERIC (Education Resources Information Center) is presented on the following pages. The accession number or "ED" number is listed to identify a document when ordering. All of the documents listed are available either in microfiche or hard copy.

The publications are available from:

ERIC Document Reproduction Service
P.O. Box 190
Arlington, Virginia 22210
(703) 841-1212

For complete information on ordering and current prices of these publications, please consult the appropriate issue of Resources in Education (RIE). RIE is a monthly abstract journal and index which identifies recently completed research or research-related reports, books, and other documents of educational significance, regardless of source. RIE is available at most college and university libraries and from public libraries. The current ED numbers covered are shown on the spine of each monthly issue of RIE.

ERIC is a national information system dedicated to the dissemination of educational research results, research-related materials and other resource information that can be used in developing more effective education programs.

ERIC maintains a network of clearinghouses, each of which is responsible for particular educational areas. For example, the ERIC Clearinghouse on Information Resources is located at the Stanford Center for Research and Development in Teaching. For further information on their offerings, please write to:

The ERIC Clearinghouse on Information Resources
SCRDT, School of Education
Stanford University
Stanford, California 94304

Please note: The following list of publications are not obtainable from the Stanford Clearinghouse or from other individual clearinghouses. When ordering, please address them to the Arlington, Virginia address given above. Orders must be prepaid, including cost of postage. To repeat, complete information on ordering documents is given in RIE.

The following list is in alphabetical order:

Butler, M.
Social and Psychological Predictors of Information Seeking and Media Use: A Multivariate Reanalysis.
ED 017 819

Butler, M.
Reaching Adults for Lifelong Learning. I. Final Report and Summary.
ED 068 792

Butler, M.
Reaching Adults for Lifelong Learning. II. Case Studies of Exemplary Programs.
ED 068 793

Butler, M.
Reaching Adults for Lifelong Learning. III. Directory of Reporting Programs and Statistical Tables.
ED 068 794

Butler, M.
Social Policy Research and the Realities of the System: Violence Done to TV Research.
ED 062 764

Carter, R.F., et al.
The Structure and Process of School-Community Relations. Volume I. Informal Communication about Schools. Project: CAST
ED 017 054

Carter, R.F.
The Structure and Process of School-Community Relations. Volume II. Between Citizens and Schools. Project: CAST.
ED 017 055

Carter, R.F., et al.
The Structure and Process of School-Community Relations. Volume III. The Structure of School-Community Relations. Project: CAST
ED 017 056

Carter, R.F. et al.
The Structure and Process of School-Community Relations. Volume IV. The Process of School-Community Relations. Project: CAST.
ED 017 057

Carter,R.F., et al.
The Structure and Process of School-Community Relations. Volume V. The Structure and Process of School-Community Relations: A Summary. Project: CAST.
ED 017 058

Collins, A.
The Interview: An Educational Research Tool. An Occasional Paper from ERIC at Stanford.
ED 044 931

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 1. The Project as a Whole: Organization, Adaptation and Expansion, November 1966.
ED 020 663

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 2. The Project's First Semester: Pupil Achievement, Teacher Attitudes and the Work of the Utilization Volunteer.
ED 020 664

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 3. Improving the Effectiveness of the Utilization Volunteer and the Utilization of ETV by the Colombian Teacher.
ED 020 665

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 4. The Colombian Teacher and the Utilization: Making ETV Work in the Schools of a Developing Country.
ED 020 666

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 5. The Day-to-Day Job of the Utilization Volunteer: Structure, Problems and Solutions.
ED 037 997

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 6. Instructional Television for the In-Service Training of the Colombian Teacher, 1966.
ED 020 667

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 7. Improving the Effectiveness of Peace Corps Efforts to Change Teacher Behavior, November 1966.
ED 037 995

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 8. The Televised Curriculum and the Colombian Teacher, November 1966.

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 9. The Volunteers, November 1966.
ED 037 996

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Report No. 10 Feedback to the Peace Corps on Project Progress. Some Models and Suggestions, 1966.
ED 020 669

Comstock, G. & Maccoby, N.
The Peace Corps: Educational Television Project in Colombia -- Two Years of Research. Reports Nos. 1-10. Overview, 1966.
ED 017 185

Ingle, H.T.
A Basic Reference Shelf on the New Media and Teacher Training. A Series One Paper from ERIC at Stanford.
ED 019 011

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Telemedicine in Alaska: The ATS Satellite Biomedical Demonstration; Final Report of the Evaluation of the ATS-6 Biomedical Demonstration in Alaska.
Paper copy = $9.00 and Microfiche Copy = $2.25
PB 250983/AS

Kreimer, O. et al.
Health Care and Satellite Radio Communication in Village Alaska
Paper copy = $11.25 and Microfiche copy = $2.25
PB 238742/AS/LK

Martin, T. H.
Feature Analysis of Interactive Retrieval Systems
Paper copy = $5.25 and Microfiche Copy = $2.25
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INSTITUTE FILMS FROM UC EXTENSION MEDIA CENTER

The following films produced in conjunction with research projects conducted by the Institute are available for purchase or rental from:

University of California
Extension Media Center
Berkeley, California 94720

The films are 16mm, in color, and run about 20 minutes each.

"Satellite Housecall"

A presentation of a health care delivery system, based on satellite-aided voice communications in village Alaska.

Purchase price: $270.00 Rental: $20.00 per day

"Access"

An overview of operational features of some large computer-based interactive information retrieval systems.

Purchase price: $270.00 Rental: $20.00 per day

"Educable"

An introduction to the educational cable television idea, and some of its promises and problems.

Purchase price: $245.00 Rental: $20.00 per day

"SPIRES/BALLOTS Report"

An introduction to Stanford's Information Retrieval and Library Automation Systems. Please consult with the Media Center on current prices.

PERSONNEL AND ORGANIZATION

The Institute for Communication Research is one division of the Department of Communication. Lyle Nelson is Chairman of the Department. Nathan Maccoby is Director of the Institute. The Institute was established in 1957 and directed by Wilbur Schramm until his retirement in 1973.

Other divisions of the Department provide training in journalism, broadcasting and film, and mid-career training for professional journalists. The Department provides programs leading to the B.A., M.A., and Ph.D. degrees.

Members of the Senior Staff

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New Appointments: Department of Communication

Marion Lewenstein
Assistant Professor

---

* No longer at the Institute

1. Now at the American Heart Association.
2. Now at the Office Telecommunication, State of Alaska
3. Now Assistant Professor at Simon Frazer University.

Visiting Scholars at the Institute for 1975-1976

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Dr. Aziz Choudhry
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Academy for Educational Development

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KQED - Television, San Francisco

National Aeronautics and Space Administration

National Cancer Institute

National Heart, Lung and Blood Institute

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National Institutes for Health

National Iranian Radio and Television

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