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ABSTRACT

The National Assessment of Educational Progress studies selected research efforts in the agriculture, economics, and health fields to discover successful strategies for the dissemination and adoption of educational research. Interviews were conducted with people familiar with the Agricultural Extension Movement, Health Examination Interview Surveys, and the Consumer Expenditure Survey as well as with people experienced in the dissemination of educational research information. (Five appendixes contain lists of participants in the study and descriptions of the study methods and resources.) Findings and recommendations included the following: (1) Careful planning of research directions to avoid duplicate efforts requires a good communication structure. (2) Thorough planning and development of methodology and instruments for data collection includes site visits, pretests, and rigorous standards. (3) Positive staff morale needs to be developed; a variety of effective measures are available. (4) Efficient dissemination of research findings involves the use of computer information and retrieval systems, reports, publications, etc.; a model system was found to be the U.S. Department of Agriculture's Current Research Information System. (5) The effective communication of research results to key decisionmakers demands the use of easily comprehensible language and format and the proximity of the researchers to the policy makers to facilitate regular contact and appearances at hearings. The success of adoption of research information depends on linking agents which assume increasing importance for education since so many innovations are at the local level. (Specific strategies found to be effective are listed and discussed under each of the five categories of findings.) (ELG)

KEYS TO RESEARCH

UTILIZATION AND ADOPTION

A study conducted with a grant from The Ford Foundation focusing on selected aspects of agriculture, economics and health

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

September 30, 1977

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OVERVIEW

National Assessment of Educational Progress (NAEP)*, Denver, Colorado, conducted a study from April 1-August 31, 1977, of selected research efforts in the fields of agriculture, economics, health and education.

The study was done with the hope of discovering strategies that have been successful in the dissemination and adoption of research information.

Interviews were conducted with people familiar with the Agriculture Extension Movement, Health Examination Interview Surveys and the Consumer Expenditure Survey. Interviews were also conducted with people who have experience with dissemination of educational research information.

In order to reach a variety of audiences, the study was written in journalistic style with an attempt to minimize the use of technical terminology. The study was not designed to be a technical document but rather a general description of research techniques effectively used in agriculture, health and economics fields.

Background information for the report was collected by a study group including: Gloria Frazier, applications specialist; Dick Hulsart, area development coordinator; and Sara Chocran, research assistant. Based on information provided by the study group, Linda Stahl, journalist, wrote the report. The study was financed by a grant from the Ford Foundation.

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*NAEP is funded by and under contract with the National Center for Education Statistics (NCES), U,S. Office of Health, Education and Welfare, Washington, D.C. It is a project of the Education Commission of the States (ECS), Denver, Colorado. This study does not necessarily represent the views of NCES or ECS.

SUMMARY OF THE FINDINGS

Key findings that emerged from the study, and the major strategies for dealing effectively with the findings, are outlined below. Further elaboration of the findings are included in one, or more, chapters within the report.

Careful planning of directions for research includes:

Development of an overall research planning system.

Development of special studies to identify needs and investigate new approaches.

Thorough examination of past and current research.

Review of existing and planned-for federal and state projects/programs.

Surveys of impact of current research on users and attitudes of users about future research.

Review of requests for information about research.

Consultation with various technical and administrative experts from outside organizations as well as within the system.

Participation in national, regional and local conferences where researchers can share ideas with potential users of the data, as well as with other researchers.

Contact with private organizations and other government agencies conducting similar or related research.

Communication with federal and state legislators through personal contact and attendance at hearings.

Examination of legislative records and reports.

Thorough planning and development of methodology for data collection includes:

Involvement of experts with a wide range of experiences in development and review of instruments to be used in data collection.

Examination of data collection methodology of other research organizations.

Extensive pilot testing of instruments and data collection techniques.

Revision of instruments and data collection techniques based on pilot testing.

Thorough training of personnel involved in collection of research data.

Development of positive staff morale includes:

Providing staff with opportunity for a variety of job positions and experiences.

Budgeting time and funds to develop research methodology.

Informing staff of how the results of the research are utilized.

Encouraging staff contact with other researchers both within and external to organization.

Providing opportunity for co-authorship of articles with other professionals.

Developing ways to keep staff informed about each others' work within the organization.

Increasing knowledge about processes necessary to insure utility of research.

Considering staff contributions as important as that of outside consultants.

Efficient overall dissemination of research findings includes:

Involvement of potential users in planning, analysis and reporting of research.

Development of an easily accessible computer information retrieval system.

Publication of reports that emphasize key findings and important trends in language appropriate for target audience.

Use of a variety of communication devices -- staff publications, popular magazines and newspapers, professional journals, T.V. and radio.

Cooperative dissemination activities with other researchers in private and public organizations.

Regular contact with media people.

Providing testimony before legislators.

Providing policy-relevant data for federal, state and local advisory councils and task forces.

Microfiching, microfilming and taping of technical data.

Development of agents or organizations that link researchers with users of research results.

Effective communication of research results to key decision makers includes:

Maintenance of continuous personal contact with key decision makers through seminars, telephone contact, individual meetings and attendance at hearings.

Assignment of personnel within research organizations to determine needs of decision makers and to provide research results in format that decision makers can use.

Development of reports of research results that summarize significant findings, outline alternative solutions and/or directions and provide information on other studies that have supporting or conflicting findings.

Release of selected research results to key decision makers before releasing to the media and public.

Making clear to key decision makers the importance of proposed or conducted research.

Development of a journal that describes implications of major research studies in a particular field.

Establishment of panel of noted researchers to judge the validity of the findings of major research studies.

CHAPTER 1

THE PROBLEMS OF EARLY ADOLESCENCE

In the United States, educational research and development is at an awkward stage -- gangling, uncoordinated and often appearing uncertain in both purpose and direction.

No wonder. It has existed as an organized enterprise in this country for only twenty years. Compared with American research efforts in other fields, such as medicine and agriculture, it is in early adolescence.

It is not only a fledgling system facing the normal problems of growing up, but it is a system that suffers from an image problem, too. It might be described as the image of a child who did not live up to the unrealistic expectations of ambitious parents.

"Educational research and development will continue to be regarded with a dim view for what it cannot do. The sixties oversold it and now we are getting the reaction...," said Corrine Rieder, an associate director at the National Institute of Education (NIE).

She and others in her field expressed that view at a Washington conference held in the spring of 1977 by the Institute for Educational Leadership in cooperation with the American Educational Research Association.

In the sixties, when the educational research field grew most rapidly, there were several major sources of impetus. The 1963 Vocational Education Act included substantial money for research. The Elementary and Secondary Education Act, passed in 1965, and its subsequent amendments, provided funds

for the research, development and demonstration of various approaches to solving the educational problems of disadvantaged and impoverished students.

In a two-year period, 1965 to 1967, twenty-one research and development centers, twenty regional educational laboratories and more than one hundred research training programs blossomed. Educational Resources Information Center (ERIC), the national information storage and retrieval system of education, hummed into operation.

Finally, in 1972, the federal government took the leadership in funding educational research by creating NIE. Hopes ran high.

However, the NIE budget plunged from $110 million in 1973 to $70 million in 1976. The great hopes for continuing and enthusiastic support for the educational research field began to wane. Today the NIE budget, $89.2 million, still below the original funding level, is awaiting congressional approval.

The National Council on Educational Research points out that only one-half of one percent of the total national expenditure for education is spent on research. In the agricultural field, it is five percent.

Part of the problem has been that some observers anticipated "instant" results from educational research -- a miraculous panacea for the schools' problems in two or three years. They did not stop to think that in other fields major breakthroughs came only after many, many years of research and development.

Besides this impatience on the part of various groups, another problem has plagued educational research. Some school systems of the nation seemed to lack incentive for adoption of new techniques resulting from research efforts.

U.S. Senator Claiborne Pell, chairman of the Senate subcommittee on Education, Arts and Humanities, explains it:

"...Under the National Institute of Health, if a new life-saving device or medical treatment is discovered, there is a strong move to adopt it in every hospital throughout the country, for it saves lives. Should research and development in the space or defense field create a new technique, there is a very strong reason to adopt it because of the cost-saving factor and the profit motivation."

"Such is not the case with education research and development. It is not a simple matter for a local educational agency to adopt a new method of instruction or a new type of teaching machine. Machines cost money. Teachers have to be retrained. This, too, costs money. Yet the corollary with industry and cost savings and profits does not apply. Education budgets are tight and are not prone to swift adjustments.... In other words, there is a clear-cut lack of incentive to adopt that which has been created."

There also have been serious problems with the ability of educational researchers to express their findings in terms readily understandable and usable to educational practitioners or key decision makers molding the course of education activities in the nation.

In a recent interview, Chester Finn, legislative assistant to U.S. Senator Daniel Patrick Moynihan, cited the missing ingredients in the utilization of educational research data: the absence of short, concise reports in simple language; the frequent failure to supply key data supported by evidence; and the almost total failure of educational researchers to focus on the policy implications of their work.

George Kaplan of the Institute for Educational Leadership, Washington, D.C., said educational research reports are too lengthy, technical and steeped in jargon and focus more on individual facts than process to a fault.

These men, as well as others interested in the problems of educational research effectiveness, said that researchers should suggest possible uses for their data and provide alternative avenues to seeking solutions for educational problems.

Finn said the educational research system might be aided in several ways. Among his chief suggestions was the development of a journal, dedicated to educational research, that describes implications of major research studies in language understandable to key decision makers and that provides for possible alternatives and/or directions to solving problems.

He suggested that educational researchers in reporting their data to legislators need to not only indicate possible implications of the data but also describe other studies which either support or contradict their results.

Finn strongly supports the development of a panel or academy of recognized experts who would have as their task the examination and review of major research results with the ultimate goal of providing assurance of the validity of the data.

U.S. Representative John Brademus, House majority whip and member of the House subcommittee on Elementary, Secondary and Vocational Education, has written about another factor that has weakened educational research efforts. He cites the frequent failure of professional groups in the field of education, including those of teachers, chief state school officers and even researchers themselves to speak out strongly for educational research as a critical area of activity in the education field.

The group that did this study encountered the phenomenon of educational researchers who are not being sufficiently supported by other educational groups or, for that matter, by each other. The study group also detected the existence of a weak, professional self-image among some educational researchers.

An informal survey of educational researchers at the National Assessment of Educational Progress (NAEP), Denver, Colorado, revealed some interesting indications of how educational researchers might be viewing themselves in

the context of the wider research community in this nation.

On one survey item, nineteen participants were asked: "In terms of recognition of the importance of research within the profession, do you feel that educational researchers receive less, about the same or more recognition than the following types of researchers?" The list included agricultural, aerospace, biological, economic, industrial, medical and sociological researchers.

A majority of the educational research professionals responding to the survey indicated that within their profession they receive LESS recognition for their work than do researchers in all of the other fields listed except sociology.

The survey participants also listed conditions or problems that they felt might impede the use of educational research data by legislators, local school district personnel and state departments of education. The major reasons cited were a lack of funding to do adequate research, a failure to interpret results, a failure to put research results in a form that can be used, a conflict in results from various research projects, a lack of research experience by potential users, a lack of time to do adequate research and a lack of people to carry through on the results of research.

During the course of this study, one of the NAEP researchers revealed that she had carefully reviewed the educational research knowledge of thirty teachers at seven public schools in a major city. She wanted to know what research they were aware of and what research findings they were putting to use in their teaching.

Only one of the thirty elementary and secondary teachers interviewed read an educational research publication regularly; five out of the thirty did so periodically; and six, who happened to be members of educational professional

associations, read -- on the average -- only one research article or book on the average per year.

Twenty-nine of the thirty did not know the name of any educational researcher. Almost all of the teachers were concerned about what researchers had to say about the relationship between class size and teacher effectiveness, but none knew of any research on the topic.

This has by no means been an in-depth review of the problems facing the fledgling educational research community. The study highlights some of the major problems. This is a summarization of evidence that indicated the adolescent educational research enterprise is troubled and searching for direction and maturity.

CHAPTER 2

APPROACH TO MISSION

In its third annual report, the National Council on Educational Research, which provides policy guidance to NIE, noted some of the fair and unfair comparisons that have been made with educational research and other research efforts.

The report says in part:

> "Because science has provided answers in such diffuse fields as space exploration, military hardware, agriculture production and medicine, people often assume that science also can provide answers for education. Sometimes it can. But systematic efforts to build an educational research enterprise are barely twenty years old. The accomplishments of space, medical, agricultural and military science result from long and concentrated periods of research system building. And all of these systems have produced their share of failures and unfulfilled hopes."

The report goes on to say that major research systems, such as agriculture, have certain important features that the educational research system still is lacking. These features are a "solid core of high quality" researchers and developers, a "solid base" of scientific knowledge and technology and a system for linking research and practice.

The NAEP study chose to examine selected research efforts in health, agriculture and economics. These selections were based on several factors, but one very important factor was that each of these systems shows evidence of using research data to influence policy decisions -- a skill the group found sorely lacking in the educational research community. Thus, paramount in the group's examination was an effort to learn how these diverse disciplines succeed in

influencing decision makers, as well as practitioners, in the field.

Selections were also based on evidence that the research data were used nationwide and translated into practice in the field.

In the field of economics, the group studied the Consumer Price Index (CPI), a monthly statistical measure of the average change in prices of goods and services purchased by urban wage earners and clerical workers for day-to-day living. The examination of the CPI led to a look at the Consumer Expenditure Survey (CES). Both CES and CPI are conducted by the U.S. Bureau of Labor Statistics. CES is a survey of consumer expenditures, savings and income that has been conducted periodically since 1888. It is the only comprehensive source of such detailed information about American families.

In the health field, the study group focused on two major health surveys conducted by the National Center for Health Statistics (NCHS) in its effort to meet the requirements of the National Health Survey Act of 1956.

The two surveys are: (1) the Health and Nutrition Examination Survey (HANES), which involves medical and dental exams and tests and measurements of certain age segments of the population with an emphasis on learning answers to specific health questions; and (2) the Health Interview Survey (HIS), a weekly, continuing, nationwide survey of illness patterns in U.S. households.

In the agriculture field, the study group interviewed people who were familiar with the public-supported system of research. It includes research done by six agencies in the U.S. Department of Agriculture, fifty-five state agriculture experiment stations, nineteen schools of forestry, sixteen land-grant colleges of 1890 and the Tuskegee Institute. These organizations conduct about ninety-five percent of the nation's public-supported agricultural

research. The study group paid particular attention to the agriculture extension system.

It was impossible to investigate every phase of the system; therefore, the study group decided to pay particular attention to the agriculture extension system. Interviews were conducted primarily with personnel with the USDA Extension Service in Washington, D.C., the Cooperative Extension Service at Colorado State University and Jefferson County (Colo.) Extension Service Office.

The study group from NAEP did not attempt to compare the educational research system with the research systems of the other fields, nor did the study group attempt to devise a model for the future development of the educational research enterprise.

Rather members of the group did attempt to give a view of what various agriculture, health and economic research methods are like in the hope that those involved with education might investigate further the possible use of similar methodologies to improve educational research. The description of the three fields was limited by the time allotted to the study and the funds available to consult with people familar with the various research systems.

CHAPTER 3

IT'S A MATTER OF LIFE OR DEATH

Almost every farmer in the nation and most processers and distributors of food products have used or have been affected by the results of research conducted by federal, state and local agricultural agencies.

Price information collected and published by the Bureau of Labor Statistics has been used as a yardstick in updating and revising wage and salary contracts, social security benefits, retirement, welfare and other income payments for millions of Americans.

The findings of the health surveys, conducted by the National Center for Health Statistics, have been used extensively as the basis for further medical research and in the development of major health legislation. The information is reported in both technical and popular publications concerned with health problems.

For those who worked on the NAEP study, it was apparent that matters of food, money and medicine hit at the heart of what many people perceive as their immediate survival needs.

The NAEP study group feel that, as unfortunate as it may be, education ranks lower on the list of priorities of the general public. They feel that this may have been an important factor influencing the support that the fields of agriculture, health and economics have received for their research as well as the attention that they continue to command.

The fact that educational research gets only one percent of the $21 billion spent by the federal government on research and development activities indicates that those who make decisions about federal appropriations may not feel that educational research is a critical area.

It is apparent that the educational community needs to do a far better job of convincing key legislators and policy makers that providing up-to-date information about educational needs and the outcomes of schooling cannot be delayed. They must be impressed with the idea that supporting research that will lead to improvements in education is as important as funding research seeking a cure for cancer, finding a better method of fighting crop diseases, or determining a formula for calculating wages.

CHAPTER 4

DOES THE RIGHT HAND KNOW WHAT THE LEFT HAND IS DOING?

A concern among agriculture, economics and health research organizations is that research findings should be synthesized, placed in the context of other research and, whenever possible, not duplicate research done in the past or currently under way.

In each of the three fields, the process for identifying research needs and determining new directions for research involves many different avenues of activity.

The process includes, but is not limited to:

- A thorough examination of past and current research provided through various data and information systems.
- A review of existing and planned federal and state projects and programs.
- Consultation with various technical and administrative experts from outside agencies and organizations, as well as from within the system.
- Participation in and organization of national, regional and local conferences where researchers can share ideas with users of the data as well as with other researchers.
- Close contact with private organizations and other government agencies conducting similar or related research.
- Communication with federal and state legislators through personal contact, attendance at hearings and examination of legislative records and reports.
- Development of special studies to identify needs and investigate new approaches.

— Surveys of impact of current research on users and attitudes of users about future research.

— Review of requests for information about research.

Activities for identifying research needs and determining new directions for research also can be bolstered by the existence of a structure that assures communication between and among researchers and research users at various levels. The U.S. Department of Agriculture (USDA) has built such an intricate structure.

Each of the major USDA research agencies and the National Association of State Universities and Land Grant Colleges (NASULGC), whose members represent university and college departments of agriculture and extension services, report directly to the U.S. Secretary of Agriculture.

Members of these organizations and representatives of regional and state research agencies form the Agricultural Research and Policy Advisory Committee (ARPAC), which makes policy recommendations to both federal and state agencies. ARPAC makes its policy recommendation on such matters as the planning, evaluation and coordination of long-range, unified agricultural research programs.

The ARPAC determines which work should be done by federal agencies and by state agencies in order for the national programs to be carried out. Both regional and national agricultural meetings, involving USDA and state agency administrators, are sponsored by the USDA and NASULGC through ARPAC.

National agricultural research planning committees develop national needs and priorities for regional research programs. Regional needs and priorities are set by the regional planning committees that use information from regional research programs, federal and state research administrators, industry groups, state and federal legislators. Within regions, regional program task forces

plan for research on specially selected topics.

Another feature that appears to increase the effectiveness of agricultural research efforts is the willingness of an organization to amalgamate research efforts to avoid duplication of effort.

When the third cycle Health Examination Survey (HES), which concentrated on physical examinations, was being conducted, additional studies -- including a National Nutrition Survey authorized by Congress -- revealed that, in certain areas of the nation and with certain age and income groups, malnutrition and undernutrition were glaring problems.

When it came time to develop a fourth phase, or "cycle," for HES surveys, the National Center for Health Statistics (NCHS) decided it made sense to join HES and the National Nutrition Survey system into one "dual-purpose" survey renamed the Health and Nutrition Examination Survey (HANES). They thought that combining the two, rather than building a new system for a continuing nutrition survey, made sense because both tasks could utilize highly trained field and headquarters personnel whose skills are unique and difficult to duplicate.

When it comes to the responsiveness of researchers to the suggestions of outsiders, another good example can be found in the HANES experience.

During the planning for the first HANES, conducted in 1971-72, Carl Kupfer, M.D., director of the National Eye Institute, indicated an interest in obtaining more definitive information on the total prevalence and distribution of specific eye diseases and related conditions in the United States. He said it would help the institute set goals for future emphasis in its research programs.

HANES researchers encouraged two National Eye Institute opthalmologists to develop an examination form and standardized protocol for opthamalic examinations that were used in the 1971-72 HANES study.

In general, the NAEP study group discovered a spirit of cooperation rather than competitiveness among researchers in the fields of agriculture, economics and health -- cooperation that encompassed both private and public institutions and that, when connected with public institutions, extended across local, state and federal jurisdictions.

CHAPTER 5

THERE IS METHOD IN THE MADNESS OF RESEARCH

It was the observation of the NAEP study group that -- in those areas in agriculture, economics and health where research studies were conducted and survey data were collected -- that considerable time was provided for the development of both instruments and methodology.

In the case of the Health Examination Survey, development of instruments for the survey involves a series of activities over a period of several years. During this period there is extensive involvement of experts from concerned government health agencies, university health and science departments and other public and private health organizations and associations in the development and review of the instruments. These experts are not only specialists in the field being tested but are also representative of the people most likely to use the data.

Members of the National Center for Health Statistics (NCHS) staff carefully examine the experience of other health surveys, both national and international. They also visit specific institutions and individuals across the country in order to discuss problems regarding the proposed examination.

Following development and review of instruments for the examination, NCHS conducts extensive pilot testing to check on the feasibility and acceptability of new examination procedures. This includes evaluation of questionnaires, interviewing techniques and administrative procedures. More than one pretest is conducted so that there is opportunity for redeveloping instruments or

revising administrative procedures and then testing those changes again.

The result of this careful planning, development and field testing has been the creation of extremely creative and complex instruments that provide the data most needed by the users.

The successes of the Consumer Expenditure Survey (CES) in collecting minute and extensive data regarding family expenditures can be attributed to its intensive planning in the area of data collection.

Data collection for CES is under the direction of the U.S. Census Bureau's permanent professional field staff, which operates through twelve data collection centers throughout the United States.

Additional local program offices are established to assist in the collection of data. Each of these local offices is directed by a Census Bureau supervisor, who hires a staff of approximately six interviewers. The supervisors make a point to hire interviewers who have already demonstrated ability in previous surveys conducted by the bureau.

Staff members are thoroughly trained prior to beginning their work on the survey. Interviewers receive seven days of classroom training plus self-study training materials. Additional home study and classroom training are provided prior to the beginning of each phase of the survey.

Formal training is supplemented by on-the-job training to insure job performance at a level of established standards. Quality control measures, such as editing replies, observing interviews and reinterviewing selected sample family units, are used throughout the survey.

In an earlier consumer expenditure survey, some testing of collection methods was performed by the U.S. Bureau of Labor Statistics and by the Survey Research Laboratory of the University of Illinois. These tests, and the

experience of other countries, indicated that high-quality data could be obtained if the survey design was tailored so that information on larger and more easily recalled expenditures was collected by periodic recall. Interviews and day-to-day record keeping on small, less expensive items was obtained by using methods such as diaries.

As a result of this testing of collection methods, quarterly and diary collection techniques were introduced into the latest consumer expenditure survey. The quarterly collection of data involved the larger and more easily remembered expenses, while the diary involved a daily record of all expenditures for two one-week periods.

Due to the tremendous number of research studies conducted by the agricultural system it is difficult to detail the extent of planning for instrumentation and methodology. However, it became clear during interviews with agricultural personnel that most agricultural research is carefully planned.

As already pointed out, agriculture has a very elaborate system for research planning in which most major research is reviewed at several different levels. Professionals from both public and private areas are involved. Many of the research studies involve cooperative efforts among personnel at the land-grant universities and colleges and other agricultural agencies.

Before research studies can be included in agriculture's Current Research Information System (CRIS), the research staff of the Cooperative State Research Service (CSRS) must review and approve the research. This staff contains research specialists experienced in major areas of concern to the people served by the USDA system who demand that any reported data represents carefully designed and analyzed research.

The members of the NAEP study group have had considerable experience with survey and other research studies conducted in the field of education. The group feels that educational researchers are seldom given the funds or time to develop the instruments or data collection methods of the complexity or quality found in the Health Examination or Consumer Expenditure surveys. When such funds are provided, as in the case of the National Assessment of Educational Progress, the requirements for information are so vast that it is difficult for the organization to do in-depth research of specific topics.

On the basis of the experience of the study group with research conducted in other fields, a major recommendation, or hope, for educational research would be that sufficient money and time be provided to do in-depth research on critical issues. This would mean adequate funds and time to conduct extensive planning and field testing of both instruments and data collection methods.

CHAPTER 6

PUTTING YOUR BEST FOOT FORWARD

What creates high morale among research staff members and induces them to give their "all" to their work?

Members of the health, agriculture and economics research systems described a number of conditions that they believe positively influence performance of research staff members.

They think it is important for staff members to research organizations to have diverse professional experiences that allow them to understand all, or most, aspects of their research system, not just the sector in which they are working.

For instance, if a research scientist formerly has held an administrative post in the research organization, or if an administrator formerly has been a researcher, then greater understanding can exist between the two, making cooperation easier and their working relationship more satisfying.

The NAEP study group also was told that it is important for research professionals to have a personal stake in the outcome of their work. People interviewed in the agricultural, economic and health research fields said this can be accomplished in a number of ways.

These include allowing researchers to co-author popular articles about their findings along with a professional writer, giving researchers the time and money to develop new research methods and improve old ones, and locating researchers where they can see their findings turned into practice -- and even assist in that process.

The study group also was told that staff morale is improved when employees know exactly how ideas and information flow within their research organization.

Another condition described as aiding staff morale and performance was giving employees an opportunity to travel and take leave time to discuss their work with people outside their own research organization.

Several people interviewed said that if researchers know how to and can influence decision makers and policy makers with their research findings, then they will get more satisfaction out of their work.

Finally, it appeared important that research organizations make a special effort to use their own staff members whenever possible rather than to rely on outside consultants who often have little at stake in outcomes of the research.

CHAPTER 7

IT'S EVERYWHERE! IT'S EVERYWHERE!

OR IS IT?

Once research data are gathered, they are of little value if they sit on a shelf gathering dust. An important step in the research and development process is widely distributing, or disseminating, research findings.

Later in this report, there will be an examination of the crucial step beyond dissemination, that of getting research adopted into practice. But for now, the focus is on the technology of distributing the results of research in the agriculture, economics and health fields.

Generally, it was discovered that these dissemination tools are used:

- Easily accessible computer information and retrieval systems that people are trained to use.
- Easily understood flyers, single-concept publications, short semi-technical articles, newsletters and fact sheets.
- Key reports indicating trends over a limited time span on vital issues.
- Comprehensive reports confined to a particular study or survey.
- Special publications of research produced in cooperation with private industry or other government agencies.
- Articles in popular magazines and professional journals, sometimes co-authored by researchers and professional writers.
- Regular contact with media people.
- Personal contacts between researchers and potential users of research.
- Testimony before legislators and task forces.

— Microfiche, microfilm and microdata tape transcripts providing technical data.

— Low-cost spots on television and radio (often public service programs).

— Exhibits in public areas and displays and presentations at professional meetings.

— Films, slides and videotapes providing visual contact with researchers and their work.

To offer further details on dissemination processes, here is a look at two approaches to distributing research data, one used by the National Center for Health Statistics (NCHS) and the other by the Consumer Price Index (CPI) office.

There were two techniques utilized by NCHS in reporting findings of both the Health Examination and Health Interview Surveys that particularly impressed the NAEP study group.

Jean Roberts in the Division of Health Examination Statistics indicated that in preparing reports of survey results, the division often contracted with individuals outside the center to assist division staff in planning for the analysis of data and the writing of the reports. These individuals were experts in the area being analyzed and usually represented the type of person who would most likely utilize the results when they were published. By having these experts involved in the analysis as well as the writing, the division was assured that the data would be summarized and reported in a form that would be appealing to some of the major users of the data.

NCHS also publishes the major research findings in a series of reports entitled Vital and Health Statistics Series. While certain reports deal with an overall description of a large study, the majority of the reports deal with the description of a particular phase of a study or a well defined topic. Each

of the reports is numbered and color-coded according to major areas or studies. Most of the reports present a summary of the information or findings provided in the report in the beginning and then proceed to more detailed descriptions of the data or information. By presenting reports on clearly defined subjects with a summary of the findings in the beginning of the report, a reader without a sophisticated knowledge of health information can quickly locate information on a particular area of interest.

The CPI is released once a month. The day before the release, special reports tailored to specific interests are sent to the chairman of the Council of Economic Advisors who passes it on to the President and other council members. The CPI reports also go to the Secretary of Labor who passes information on to the Commissioner of Labor Statistics, who is responsible for testifying on the CPI before congressional committees and the Council of Economic Advisors.

On the day the monthly CPI report comes out, press releases go out on a rigid schedule -- 8:30 a.m., Treasury Department, Office of Management and Budget, Federal Reserve Board; 9:15 a.m., concerned congressmen and selected members of the media; and 10:00 a.m., the public and people on a mailing list.

The monthly CPI report provides the telephone numbers of Bureau of Labor Statistics staff who can answer questions about the report. Questions from legislators, government agencies, business officials and the press are usually handled by the director in charge of the department responsible for the CPI report or selected members of the CPI staff.

What is important about the CPI data release process is that it is designed so that people and agencies who will make major legislative and political decisions based on the CPI receive the data before the press and general

public. In this way, if there are particularly unusual findings, these key people and agencies can explore the data further before they have to provide answers to questions from the press or the public.

CHAPTER 8

A FRIEND CALLED CRIS

The NAEP study group feels that among the many research dissemination tools it examined, the computerized information and retrieval system of the public agricultural research community is worthy of special mention. It is called the Current Research Information System, or CRIS for short, and became operational in 1969. It is a research project system providing for the interchange of information among scientists.

The USDA views CRIS as an "essential element" for effective research planning and coordination.

CRIS includes information on projects for all research conducted by the mammoth, publicly-supported agricultural research system. This information is updated annually. All research projects are reviewed at least every five years.

The NAEP study group found ample evidence in interviews that CRIS is well understood by professionals at every level in the enormous agricultural research community and is heavily used. The group further determined that by its heavy use, the professionals deem it a highly effective tool.

"Agriculture people really know their data system," one of the NAEP researchers reported. "They know it through use — constant use. The norm is to use it and it works," he added.

The NAEP study group also found it significant that CRIS provides all its data to another information system, the Smithsonian Science Information Exchange, thus further expanding the availability of the data.

Information searches through CRIS are provided free of charge to employees of USDA agencies, the state agricultural experiment stations, state extension services and to cooperating institutions. CRIS encourages these professionals to use the easiest method of requesting information possible.

Normally, CRIS completes a search and returns requested information within two weeks.

CRIS tells the user the location of the research project and the organization responsible for the research, identifies the investigators, gives dates for the beginning and ending of the research project, describes the research approach and provides details of annual progress reports on the research project.

As alluded to earlier, the USDA actively promotes CRIS among potential scientist-users. Letters are sent out periodically to state and federal agricultural scientists encouraging them to use CRIS. Among other things, USDA tries to persuade them that by using CRIS, they can more readily identify other scientists that they would want to talk with at professional meetings.

Thus, CRIS not only provides information, but also encourages further communication between researchers.

CRIS is also available now, for a fee, to researchers in the United States, Canada, Australia, Mexico and Western Europe, who are not among the participating federal and state research organizations that get the service free.

An interested scientist outside the state/federal agricultural research system can gain access to CRIS through any make or model computer terminal that can be used for what is known as "dial-up" service.

The easy access to CRIS data, the encouragement of its use, the merger of CRIS with another information and retrieval system (the Smithsonian's), the

annual updating of CRIS data and the review of research projects described in CRIS at least every five years, all appeared to contribute to its effectiveness and its positive image in the agricultural research community.

CHAPTER 9

DID YOU REALLY SAY

"INSTALLING AND MONITORING CLUSTERED PRODUCTS IN DEMONSTRATION SITES?"

Every research organization should have at least one Edwin Newman on board, someone to turn gobbledygook into understandable prose. From their respective institutions, researchers and policy makers often fail to communicate well with one another because they speak different languages. The problem also exists between researchers and people trying to put research into practice in the field.

Of concern to the NAEP study group is how researchers in education can bridge the communication gap so that they can influence important policy makers as well as have an impact on teachers and the public they serve.

The effective use of language is a key to success in any organizational research and development enterprise.

In the field of agriculture, particularly, the NAEP study group saw the importance of a variety of communication devices -- brisk fact sheets; terse newsletters; typographically pleasing, easy-to-read pamphlets often concentrating on a single concept; and bright condensations of research results that reserved complicated tables for attached indices.

All appeared to pay off in getting results from research.

The USDA publications studied range from as few as two to as many as twenty pages in length and all used helpful illustrations, sometimes on every page.

Numerous footnotes and other notations guide the reader to more technical, detailed information as needed.

While publications of CPI and NCHS were often heavily statistical by comparison and need a vocabulary at the high school level or above, researchers in those two fields as well as those in agriculture proved capable of translating research results for legislators and other policy makers.

They produced statements, perhaps as brief as one or two pages, that described the significance of research findings, provided key statistics, suggested several alternatives for action based on the research results, indicated both the positive and negative implications of the data and mentioned other research that would potentially support or conflict with their latest findings.

The NAEP research group concluded that from the standpoint of communicating with both policy makers and practitioners in the field, the agricultural research community has the most well-developed model of the three disciplines studied and might have the most to teach the educational research community in light of the variety of potential users each system should be reaching.

CHAPTER 10

WHO'S YOUR NEIGHBOR?

Question: If you were a leader in educational research, would it be a good idea to buy a house next door to a congressman? Answer: Yes, provided you knew how to interpret your research results and size up their policy implications.

Of course, one does not have to literally live next door to the powers that be, but in talking to researchers in the agriculture, economics and health fields, the NAEP study group often found a significant relationship between the geographic location of their offices and those of key policy makers in their fields.

The group found it helped for researchers or their representatives to work near key decision makers. Their close proximity led researchers into learning how to communicate with decision makers; and it allowed for constant, regular contact between the two groups.

For influence at the federal level, maintaining offices in the Washington, D.C. area seemed practically essential, the closer to the Capitol, the better.

The NAEP study group found, for example, that key people with the Consumer Price Index are in constant contact with what they call "critical staff members" in the U.S. Congress. The CPI director is called by the head of the Federal Reserve Board when he is faced with an important decision that could be influenced by CPI research data.

The USDA has a congressional liaison officer working on the Hill, regularly

providing needed research information to Congressmen and their aides. Additionally, USDA keeps a steady stream of research experts flowing into Congress to testify at important hearings.

In the educational research community there appears to be some growing awareness of the need to bolster efforts to influence policy makers -- to be in the right place at the right time and more particularly to make regular appearances at Congressional hearings.

Roy Forbes, director of the National Assessment of Educational Progress, one of the major educational research efforts in the United States, recently said that he realizes more and more how important it is to have educational research interests actively represented in Washington by key experts, articulate constituents or liaison officers who maintain close ties with key decision makers.

Similarly, Peggy Campeau, a representative of the American Institutes for Research in behavioral sciences (AIR), after participating in a seminar on Washington policy making this spring, came to realize that it is important for the highest-ranking corporate officer to speak on behalf of AIR at any Congressional hearing where AIR might want to make an impact.

"Anything short of that...will not carry weight with decision makers on the Hill," she concluded.

The Institute for Educational Leadership, a program of the George Washington University in Washington, D.C., has been actively seeking to strengthen present and potential leadership in American education at the policy level of state and federal government. IEL's programs are designed to assist policy makers in improving communications with educators by creating new forums for the interchange of ideas among federal, state and local education policy makers.

Jacob J. Feldman holds a position in the health field which the NAEP study group believes helps influence policy based on research.

Feldman's title is associate director of analysis, division of analysis, National Center for Health Statistics. Among his responsibilities are running a clearinghouse for health statistics, stimulating development of measurement concepts, preparing an overall plan for the analysis and presentation of research data and preparing annual reports.

But what the NAEP study group found most interesting among Feldman's myriad tasks is the preparation of reports to be used in Congressional testimony or for study by appropriate subcommittees and other key decision-making bodies. These reports are a synthesis of studies done by a number of health researchers.

His work establishes a strong link between research and decision making.

Also worth special note is the keen political savvy of USDA researchers. USDA officials will draft legislation upon request for congressional aides whether or not the legislation's intent is supported by USDA. However, later they are careful to avail themselves of opportunities to express their feelings about the proposed legislation during the regular legislative review procedures.

A rather unique model of how to influence policy decisions with research was found in the Health Policy Program, School of Medicine, University of California, San Francisco.

Established in 1972, the Health Policy Program's objectives are to improve the quality and flow of information to those who make health policy decisions at the local, state and national levels.

During the regular academic year seminars on policy issues are held and include representatives of the faculty of other universities, the research staffs of state and federal legislators, staffs of professional associations

like the American Society of Internal Medicine, and members of such organizations as the Rand Corporation.

The Health Policy Program also has a "Washington Study Group" which works to enhance communication with federal health policy makers and their assistants.

The program engages in analysis of data that relates to health policy issues and of the current policy-making process. When information is not available to shed light on a current policy problem, then the program initiates academic research studies to fill the gap.

Members of the program attempt to give assistance in both formal and informal ways to policy makers in Congress, the Office of Management and Budget, NEW, the Veterans Administration, the California State Senate's Office of Research and other organizations.

This section has attempted to show procedures for maintaining close ties between researchers and decision makers. Working within close proximity of one another or establishing a formal network for regularly getting together were the primary methods encountered.

CHAPTER 11

SHALL WE CONSIDER ADOPTION?

Irv Lehmann, a Michigan State University professor, suffered a coronary in May 1975. Before the attack he exercised infrequently and ate "as he damned well pleased."

But the heart attack brought Lehmann to grips with reality. He knew he had to change his diet and exercise regularly.

In the course of trying to find out exactly what to do, Lehmann encountered data based on research done by the National Center for Health Statistics.

The research findings were contained in a popular magazine article he read on how to prevent heart attacks. The data also was the basis for pamphlets supplied to him by the American Heart Association.

The research findings -- translated into layman's language -- supported what Lehmann's physician had told him. He was persuaded. He was impressed. The information has helped to shape his habits since that day in May two years ago. Now he jogs four miles a day at the rate of 11.5 minutes per mile and eats a low-cholesterol, low-fat diet.

Shirley Weddle of Jefferson County, Colorado, a home economist by training, because of membership in a professional organization, recently found an opportunity to learn about food preservation techniques through the agricultural extension service in Jefferson County.

She agreed to give fifteen hours of service in exchange for fifteen hours of training. The training, based on USDA research, included reading handouts,

watching video tapes and attending workshops run by agriculture specialists.

Weddle came away with a good impression -- the information was clear, not too technical -- and she had an opportunity to suggest some things herself. Now she's able to train others in food preservation and get continuing education credit for her efforts. And as a side benefit, her children have become interested in nutrition and preserving food.

In short, the USDA research findings on food preservation have touched Weddle's life and that of her family.

John Smith (not his real name) is getting a divorce. Smith, of New York, is facing a large alimony settlement. He desperately wants to know how inflation and cost-of-living factors are going to affect his payments, which in turn will affect the quality of his life.

Recently he called Pat Jackman at the Consumer Price Index office in Washington, D.C. Smith wanted some information based on sound research. As it turns out, CPI data will be introduced in the divorce court proceedings and will help shape the financial future for John Smith and the ex-Mrs. Smith.

These examples illustrate how data from the agricultural, economics and health research organizations are affecting the everyday lives of everyday folks. The research results actually touch people.

In the jargon of the research world, "adoption" is the process by which the results of research changes the habits or practices of people.

In the case of Lehmann, the adoption was accomplished through popular magazine writing, non-technical pamphlets and talks with his physician. For Weddle, adoption occurred because of publications, video tapes and personal contact with USDA workers. For Smith, the CPI data was of essential use because it has over a period of time been built into many economic formulas, even into alimony payment formulas.

CHAPTER 12

ADOPTION THROUGH LINKING

The adoption of new practices based on research does not just happen automatically. The research findings should be distributed in an easy to use, understandable form and often there has to be an agent working to link the research to the potential user. Many times without this linking agent, research data remains just so much verbiage stacked in a pile on somebody's desk or stored in a computer.

In the publicly-supported agricultural research system there is a strong link between research and practice that has successfully bound together the two for many years.

It is the Cooperative Extension Service of the United States, which has been operating for more than a century as an educational agency of the USDA. It involves interaction among land-grant colleges, universities and county and city governments.

It is a formal system for getting the results of USDA research into practice.

The scope of the program is overwhelming. The Cooperative Extension Service involves about sixteen thousand professionals, ten thousand support-staff members, eleven thousand para-professional aides and over a million volunteers.

Funding for the program is diverse and hinges on no single source. Totaling more than $300 million annually, Cooperative Extension Service funds come from federal, state, local and private sources.

Extension services are far-flung. They are offered through all fifty-two land-grant universities and colleges with offices in nearly every county and large metropolitan area in the United States.

The programs of the extension service are educational in content and method rather than regulatory or fiscal. They are a vehicle for transferring a broad spectrum of agricultural research findings to clientele in all counties.

The Federal Extension Service (FES) serves as a central office representing the Cooperative Extension Service. It provides national leadership in extension programs to insure their coordinated support of significant national goals growing out of USDA research. FES approves the appointment of each state director of the Cooperative Extension Service, who is selected by the governing body of the land-grant college of that state.

While major goals for the extension activities are set at the federal level, there is wide latitude to permit the states to adapt their programs to varying needs.

The extension services are administered by the land-grant universities through an extension director and provide informal, non-credit education for all ages. In the operation of the extension service, there is a free flow of communication among USDA researchers, extension professionals, resident-teachers in the state university systems and researchers of other private and public agencies.

This communication is achieved at the university level by having researchers from USDA and other agencies sharing teaching responsibilities and working cooperatively on federal, state and local research projects with resident researchers.

Cooperative extension agents, in cooperation with extension specialists from the university or college and researchers from the state agricultural experiment stations, work directly with farmers and other community people on a county level. These agents provide advice to their clientele on a vast array of both urban and rural problems. The agents also aid their clientele by giving demonstrations, workshops and short courses to introduce new and proposed practices developed by research at federal, state and local levels.

Local community residents and organizations have considerable influence on the work of these agents and the local semi-autonomous extension offices from which they operate. Local governments as well as federal and state governments provide funds for various extension projects; local Farm Bureaus, schools, service clubs and other private and public organizations work cooperatively with agents on various projects and local residents are often represented on committees and boards that advise local extension offices regarding community needs.

It is this federal/state/local network that ultimately links the practitioner, the farmer or the urban resident, with an agent knowledgeable about research findings and capable of teaching their application.

The NAEP study group found the linking processes between practitioners and researchers in the other research systems examined, far less developed or extensive than the processes utilized in agriculture. However, the other research organizations did attempt to provide some direct sources for their clientele.

Within the Bureau of Labor Statistics there is an office that provides technical assistance in developing Consumer Price Indexes for state and local governments. The decision concerning which states or local governments would

receive such assistance are based on some of the following criteria:

- How politically or economically critical is the situation; for example, the Bureau of Labor Statistics provided assistance to the city of Fairbanks, Alaska, in developing price indexes when the construction of a major oil pipeline radically affected the economy in that area of Alaska.

- How useful will the data be; i.e., will the assistance result in a major use of the data by the state or local government and impact on a substantial number of people.

- How much staff time will be required, with a limited staff and a primary responsibility for producing the CPI every month, the Bureau of Labor Statistics must carefully consider any expenditure of staff time.

- What additional costs are entailed in providing assistance; in many cases the BLS would expect the outside agency to cover or share in the costs of producing any special tabulations.

The Consumer Expenditure Survey (CES) department was also willing to provide special tabulations for state and local agencies as well as private industry following criteria similar to those of the CPI people.

In response to the need for more adequate health-related data to meet national, state and local needs, NCHS in 1970 began the development of a Cooperative Health Statistics System (CHSS). This system was designed to provide a wide range of users of health information with comparable data in various health areas and to provide the analytical and technical assistance to make this data useful. The system would also establish a coalition among national, state and local data systems for purposes of coordinating the collection of health data.

In pursuit of these objectives, contracts are presently being awarded by the Division of Cooperative Health Statistics System to state and local agencies permitting these agencies to determine the most feasible organizational structures and content in the collection of health data and to develop training

materials that demonstrate current data systems and provide information on how to modify current systems to meet local needs.

As of September 1976, forty-five states were involved in some component of the system and fourteen of the forty-five states had considerable coordinative activity usually in the form of a state health statistics center where direct responsibility could be taken for the collecting of the data for one or more of the cooperative system components and providing consultation to local data users.

The educational research community is aware of the successes of the agricultural research planning system and the cooperative extension model.

Richard K. Helrig, director of the National Dissemination Leadership Project, a former teacher with a background in the field of agriculture, told the NAEP study group of his belief that an educational professional counterpart of the agricultural extension agent can make a difference in seeing that educational research results are used.

From his experience, Helrig believes that to be successful such an educational facilitator program must include: money for program development, funding from various sources, involvement by state departments of education, a system for measuring the effectiveness of the facilitators, and a focus on working with that small percentage of school personnel who are most prone to accept change and adopt new techniques, called "early adopters."

While small in scope, there have been recent attempts to link educational research with the practitioner.

Currently the Kansas Educational Dissemination/Diffusion System (KEDDS) provides a trained retrieval staff of thirty in regional centers who submit information searches to the national and local data basis, plus a staff at the

Kansas State Department of Education who search the consultant, practices, programs and processes files. The KEDDS regional centers are located in eight Kansas colleges and universities and in one educational cooperative. KEDDS also provides a staff of six professional facilitators who serve as helpers to local school districts in developing a process that will help them in implementing new educational programs.

Among the services offered by these facilitators to any school districts in the state of Kansas are: local needs clarification, organizational consulting, diffusion planning with Title III/IV projects, workshops on decision making, and assistance in training, finding resources, planning for change, and developing community support.

The National Institute for Education (NIE) has within the past few years greatly extended its strategies for improving dissemination of educational information between federal, state and local agencies. Included in these strategies are the following activities:

- Awarding of grants to state education agencies to develop comprehensive dissemination capacities.
- Improvement of Educational Resources Information Service (ERIC), a clearinghouse responsible for acquiring and processing for data base input significant educational information.
- Fostering of communication among state education agencies and NIE through regional and national conferences.
- Linking of resources of state education agencies, regional laboratories and centers, and institutions of higher education to local education agencies and school sites to work cooperatively on educational problems.
- Development of systems by which educational research and development centers and laboratories can communicate results of R&D to educational practitioners and can obtain input from local education agencies regarding needed research.

— Encourage development of papers and studies that will further aid understanding of processes and systems for using and producing knowledge.

At a March 1977 conference in Columbia, South Carolina, sponsored by the National Dissemination Leadership Project, Herbert Lionberger, a rural sociologist from the University of Missouri and well-known expert on agricultural dissemination, spotlighted a key difference between the agricultural and educational research systems and their link to practitioners in the field. He said that in agriculture as well as medicine, innovations came from the scientific community. Thus, the agricultural extension agents link the scientific community with the farmer.

But he said that in education, innovations are developed more and more locally and the U.S. Office of Education's diffusion network was set up to help spread locally developed innovations. Lionberger suggested that educational dissemination should make more use of researchers and university experts.

Some debate did emerge at the conference from participants who contended that innovations developed locally are not inferior to those developed at the university level. In fact, they argued that such locally developed innovations gain greater credibility among those who might adopt them because they are viewed as workable.

The dissemination experts at the conference suggested that the important thing is that state departments of education get something started to link research and practice.

The conference participants concluded that communication between and among the states is vital to establishing widespread educational linking mechanisms.

APPENDIX A

INTERVIEWS CONDUCTED DURING STUDY

AGRICULTURE INTERVIEWS

Farm Foundation
Oak Brook, Illinois

*R.J. HILDRETH	Managing Director	

U.S. Department of Agriculture
Washington, D.C.

BENJAMIN BLANKENSHIP	Director, Information Division	Economic Research Service
EUGENE M. FARKAS	Director	Agricultural Research Service
ELIZABETH S. FLEMMING	Information Leader, Home Economics	Extension Service
JOSEPH GOOD	Director, Pest Management Programs	Extension Service
OPAL MANN	Assistant Administrator, Home Economics	Extension Service
JOHN T. MYERS	Office of Operations	Extension Service
DORRIS W. RIVERS	Agricultural Extension Specialist	Extension Service
E. DEAN VAUGHAN	4-H Youth Development	Extension Service
FRED W. WOOD	Public Policy Specialist	Extension Service
MASON E. MILLER	Director of Information	Cooperative State Research Service
DAVID J. WARD	Research Planning & Coordination	S.E.C.

Colorado State University
Fort Collins, Colorado

KENNETH OAKLEAF	Assistant Director	Community Resource Development
LOWELL H. WATTS	Director	Cooperative Extension Service

*Interviewed by telephone

AGRICULTURE INTERVIEWS (cont.)

Colorado State University (cont.)

PHYLLIS WORDEN	Assistant Director	Cooperative Extension Service
WARREN TROCK	Director	Department of Economics
SUE ANDERSON	Administrative Clerk	Department of Economics

JEFFERSON COUNTY EXTENSION

Golden, Colorado

C. IVAN ARCHER	Youth
ANN SAINT-DENIS	Home Economics
ROBERT CZERNIAK	Community Development
GRETCHEN FOSSE	Communications Development
SHIRLEY WEDDLE	Community Volunteer

ECONOMICS INTERVIEWS

U.S. Bureau of Labor Statistics
Washington, D.C.

*LAMAR GOULAND	Economist	Division of Living Conditions and Price Studies
TOM LANAHAN	Economist	Division of Living Conditions and Price Studies
GEORGE WEEDEN	Economist	Division of Living Conditions and Price Studies
PAT JACKMAN	Chief	Consumer Price Index Branch

Bank of America
Los Angeles, California

*BILL BARGER	Associate Economist	Economics Department

Communication Workers of America
Englewood, Colorado

*WILLIAM H. THORNBURG	Representative	

The Education Commission of the States
Denver, Colorado

PHILLIP VINCENT	Public Finance Economist	Department of Research and Information
ROY FORBES	Director	National Assessment of Educational Progress

*Interviewed by telephone

MEDICAL INTERVIEWS

National Center for Health Statistics
Hyattsville, Maryland

HAROLD J. DUPUY	Psychological Advisor	Division of Health Examination Statistics
ARTHUR J. McDOWELL	Director	Division of Health Examination Statistics
JEAN ROBERTS	Chief, Medical Statistics Branch	Division of Health Examination Statistics
JACOB J. FELDMAN	Associate Director for Analysis	Division of Analysis
ROBERT E. FUSCHBERG	Director	Division of Health Interview Statistics
ALICE E. HAYWOOD	Technical Information Officer	Office of the Center Director
*GARRIE J. LOSEE	Deputy Associate Director	Cooperative Health Statistics System
SANDRA SURBER SMITH	Chief, Scientific and Technical Information	Division of Operations
ELIZABETH L. WHITE	Associate Director for Data Systems	Data Systems

University of California
San Francisco, California

NANCY BROWN	Administrator, Health Policy Program	

Michigan State University
206 South Kedzie Hall
East Lansing, Michigan 48824

*IRVIN J. LEHMANN	Professor of Evaluation Services	

*Interviewed by telephone

EDUCATION INTERVIEWS

Institute for Educational Leadership
Washington, D.C.

GEORGE KAPLAN	Coordinator, Washington Policy Seminar

Chief State School Officers Council
Washington, D.C.

RICHARD K. HERLIG	Director, Dissemination Project

National Institute for Education
Portland, Oregon

EDWARD ELLIS	Chief, Consumer Information Branch
LARRY HUTCHINS	Chief, School Practices and Service Division

Northwest Regional Educational Laboratory
Washington, D.C.

REX HAGANS	Program Director, Education and Work Program
EDWARD TYLER	Specialist, Dissemination and Publication

OTHER INTERVIEWS

	Dirksen Senate Office Building Washington, D.C.
CHESTER FINN	Legislative Assistant to U.S. Senator Daniel Patrick Moynihan
	Office of Consumer Education Washington, D.C.
MARY BETH MINDEN	Consultant

APPENDIX B

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APPENDIX C

DESCRIPTIONS OF PROGRAMS AND SYSTEMS EXAMINED DURING STUDY

RESEARCH PLANNING SYSTEM

SECRETARY OF AGRICULTURE

NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND GRANT COLLEGES (NASULGC)

All Deans of Agriculture and Extension Experiment Station Committee on Organization and Policy (ESCOP)

Extension Committee on Organization and Policy (ECOP)

Resident Instructional Committee on Organization and Policy (RICOP)

USDA RESEARCH AGENCIES

Agriculture Research Service (ARS)

Cooperative State Federal Research System (CSRS)

Economid Research Service (ERS)

Forest Service (FS)

Farmer Cooperative Services (FCS)

Statistical Research Service (SRS)

AGRICULTURAL RESEARCH POLICY ADVISORY COMMITTEE (ARPAC)

Ass't Secretary for Conservation, Research and Evaluation (Co-Chairman)

Designee of NASULGC (Co-Chairman)

Member of Executive Committee of NASULGC

Administrator of each of the USDA Agencies

Representatives of ESCOP, ECOP, ASCUFRO

Four Regional State Agricultural Experiment Station Directors

Representative of Colleges of 1890 and Tuskegee

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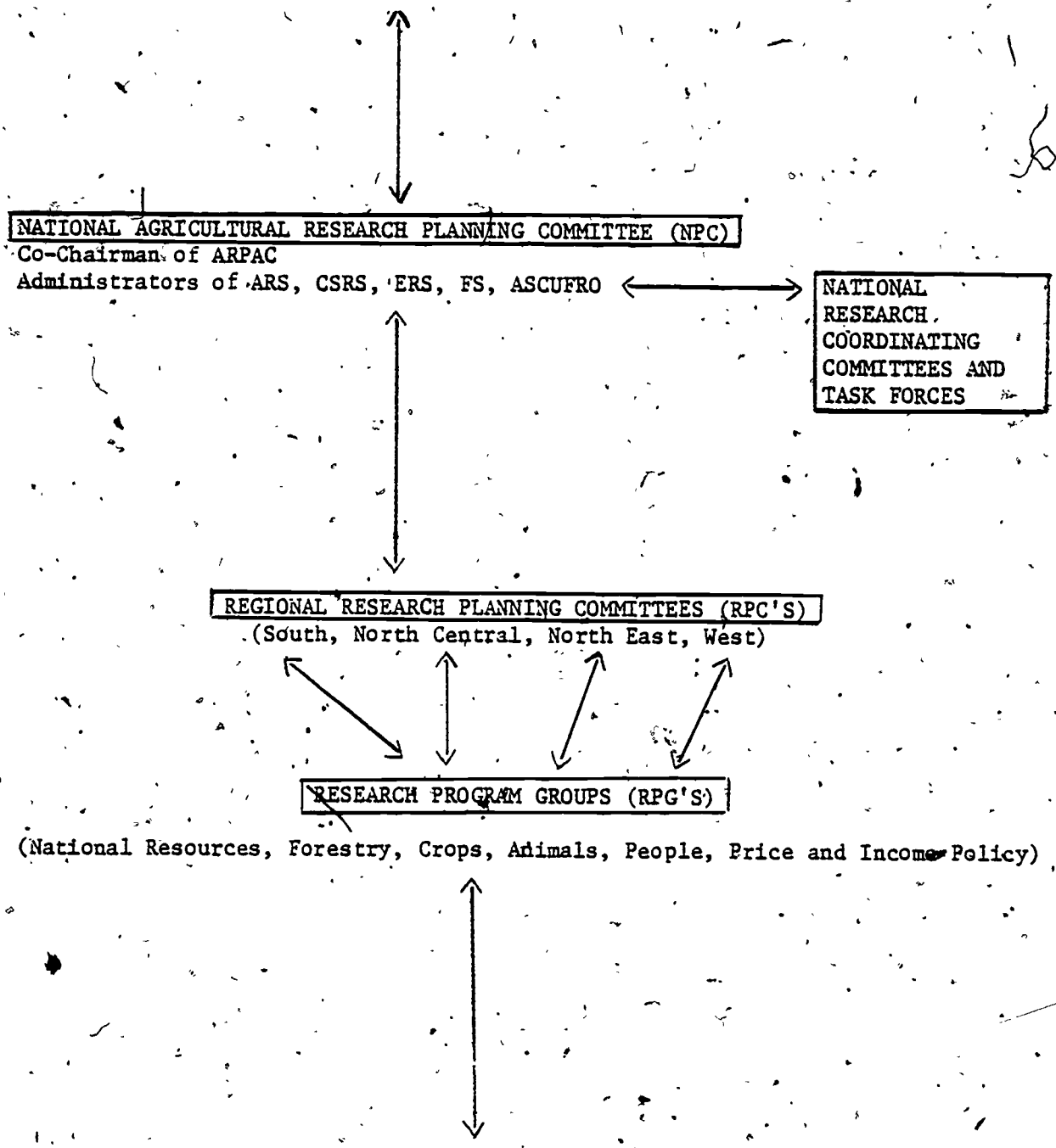
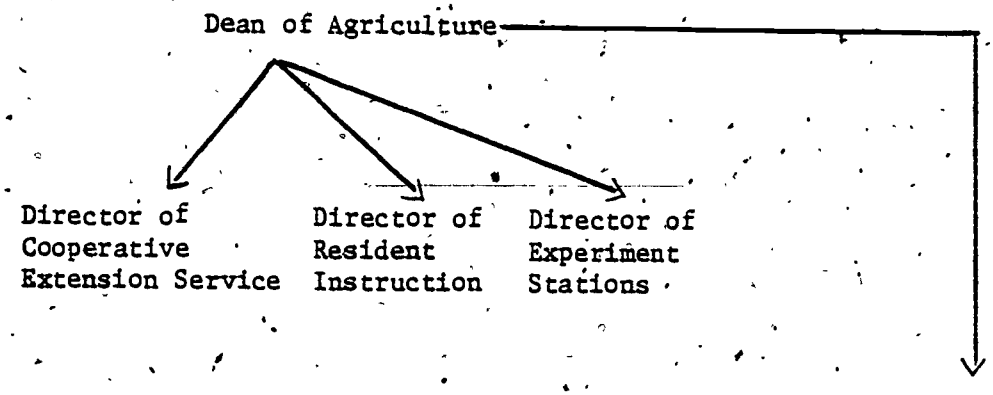

NATIONAL AGRICULTURAL RESEARCH PLANNING COMMITTEE (NPC)
Co-Chairman of ARPAC
Administrators of ARS, CSRS, ERS, FS, ASCUFRO
NATIONAL RESEARCH COORDINATING COMMITTEES AND TASK FORCES
REGIONAL RESEARCH PLANNING COMMITTEES (RPC'S)
(South, North Central, North East, West)
RESEARCH PROGRAM GROUPS (RPG'S)
(National Resources, Forestry, Crops, Animals, People, Price and Income Policy)
REGIONAL AND INTEREGIONAL RESEARCH PROGRAMS (RP'S)
(corn, potatoes, wheat, citrus, soybeans - examples of RP's subjects for CROPS)

LAND GRANT UNIVERSITY (LGU)*

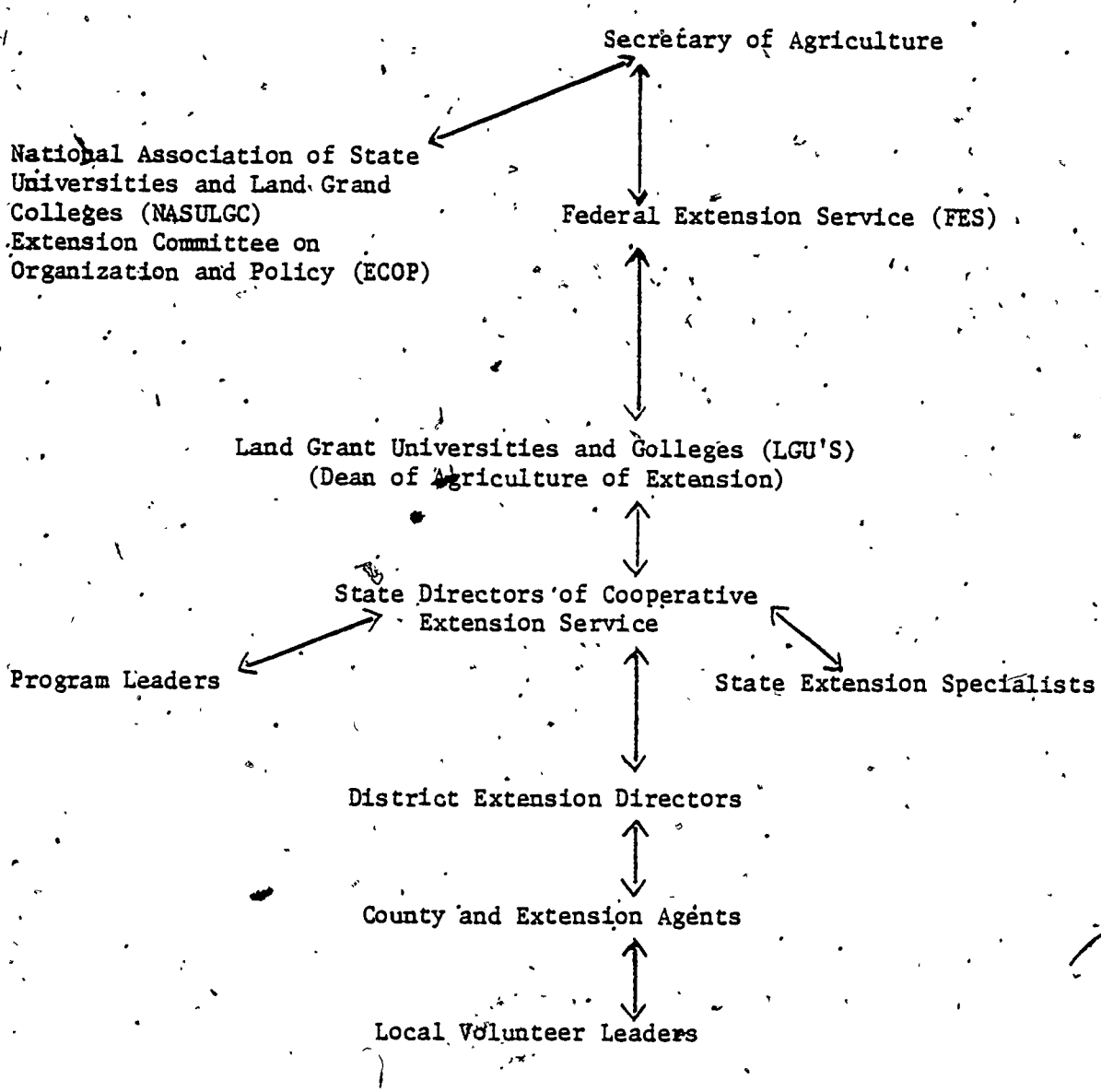


USDA researchers and scientists are located in many LGU departments and often have joint USDA and LGU titles.

Science	Commodity
Biochemistry	Agronomy
Genetics	Animal Science
Agricultural Economics	Food Science

*Organization varies from university to university.

COOPERATIVE EXTENSION SERVICE (CES)



CONSUMER EXPENDITURE SURVEY (CES)

Periodically, since 1888, the Bureau of Labor Statistics has conducted surveys of consumer expenditures, savings, and income. These surveys have been the only comprehensive sources of detailed information on expenditures, income, and changes in assets and liabilities related to the socioeconomic and demographic characteristics of families in the United States.

The 1972-73 Consumer Expenditure Survey is the eighth major survey of this type, and the first since 1960-61. The 1972-73 survey consisted of two separate surveys, each with a different data collection technique and sample: (1) a quarterly panel survey in which each consumer unit in the sample was visited by an interviewer every three months over a 15-month period, and (2) a diary or record-keeping survey completed at home by the respondent family for two 1-week periods. The survey was conducted over a 2-year period. The sample of 23,000 units was divided into two representative subsamples of approximately 11,500 units for each survey year.

CONSUMER PRICE INDEX

The Consumer Price Index is a monthly statistical measure of the average change in prices of goods and services purchased by urban wage earners and clerical workers for day-to-day living. It is based on prices of about 400 "marketbasket" items selected to represent all consumption goods and services purchased by these workers. The quantity and quality of these items is kept essentially unchanged between major revisions so that only price changes will be measured. Prices are collected in a Consumer Expenditure Survey from about 40,000 tenants and 18,000 retail establishments in 56 urban areas across the country. All taxes directly associated with the purchase and use of the 400 items are included in the index. Since the CPI is based on the expenditures of a specific population group, it may not accurately reflect the experience of other families and individuals with different buying habits. Though the CPI is often called the "Cost-of-Living Index," it measures only price change, which is just one of several important factors affecting living costs. Area indexes do not measure differences in the level of prices among cities. They only measure differences in the level of prices among cities. They only measure the average change in prices for each area since the base period.

NATIONAL HEALTH SURVEY

The National Health Survey Act of 1956 provides for the establishment and continuation of a National Health Survey to obtain information about the health status of the population in the United States, including the services received for or because of health conditions. The responsibility for the development and conduct of that program is placed with the National Center for Health Statistics (NCHS), a research-oriented statistical organization within the Health Services and Mental Health Administration (HSMHA) of the Department of Health, Education, and Welfare. Three separate and distinct programs are employed by NCHS in meeting the objectives of the Act--a household health interview survey, a family of surveys of health resources, and a health examination survey.

THE HEALTH EXAMINATION SURVEY (HES)

The Health Examination Survey (HES) is one of the three different programs employed by NCHS to accomplish the objectives of the National Health Survey. It collects data by drawing samples of the civilian, noninstitutionalized population of the United States and, by means of medical and dental examinations and various tests and measurements, undertakes to characterize the population under study. This is the most accurate way to obtain definite diagnostic data on the prevalence of certain medically defined illnesses. It is the only way to obtain information on unrecognized and undiagnosed conditions--in some cases, even nonsymptomatic conditions. It is also the only way to obtain distributions of the population by a variety of physical, physiological, and psychological measurements.

The overall plan of the Health Examination Survey has been to conduct successive, separate programs in specific age segments of the civilian, noninstitutionalized U.S. population by means of medical and dental examinations, tests, and measurements. These successive programs, referred to as "cycles," have had a specific age segment for the target population and have been concerned with certain specified health aspects of that subpopulation.

During the period from 1959 - 1970 three separate survey programs were conducted:

Cycle I	Nov 1959 - December 1962	Ages 18-79

The examination was focused on certain chronic diseases, cardiovascular diseases, arthritis and rheumatism, and diabetes. Also included were a dental examination, tests for visual and auditory acuity, X-rays, electrocardiographic tracings, blood chemistry tests, and numerous body measurements. The sample size of Cycle I was 7,710 persons, of which 6,672 (86.5 percent) were examined.

Cycle II	July 1963 - December 1965	Ages 6-11

The examination was focused primarily on various parameters of growth and development, but it also screened for heart disease, congenital abnormalities, ENT

abnormalities, and neuromusculoskeletal abnormalities. The size of the sample was 7,417, of which 7,119 (96.0 percent) were examined.

Cycle III — March 1966 - March 1970 — Ages 12-17

For Cycle II, the focus was on growth and development. A unique feature of the survey was that the same sample areas and housing units of Cycle II were used again. Thus, many of the Cycle II sample children were also examined in Cycle III, providing valuable longitudinal data. Of the total sample size of 7,518 youths, 6,773 (90.1 percent) were examined. Of those examined, 2,271 were examined in both cycles.

Cycle IV — 1971 - 1973 — Ages 1-74

Following the Health Examination Survey among youths in 1966-1970 this survey program also was requested to undertake the responsibility of nutrition surveillance. The first Health and Nutrition Examination Survey program started in 1971 was designed to measure and monitor nutritional status of the population 1 - 74 years and to collect other data needed on health of the adult population 25 - 74 years. Measures of nutritional status include clinical evaluations, with special attention to conditions indicative of nutritional problems, hematological and biochemeial determinations, and special skin, eye, and dental examinations. A subsample of the adults 25 - 74 years of age also received a detailed examination designed to provide data on current and unmet health needs in this adult population. Persons were questioned about their health care needs as they see them and about the medical care they have sought and obtained for these needs. The examination was designed to provide information on health problems found and some indications of health care needed. These data will be interrelated to obtain assessments of how well the medical care system is working.

HEALTH INTERVIEW SURVEY

The Health Interview Survey, one of the programs conducted by the National Center for Health Statistics to gather information on the health of the American people, has been in operation since July 1957. From information filtered in interviews, an attempt is made to describe the social demographic, and economic aspects of illness, disability, and the use of medical services.

The health interview questionnaire consists of a core of questions concerning items about which information has been collected each year. These basic items include acute conditions and injuries, chronic conditions, days of disability due to acute or chronic conditions, limitation of activity caused by chronic conditions or impairment, hospitalization, and the social, economic, and demographic characteristics of the interviewed sample persons. During recent years, medical care provided by physicians and dental care have become core items.

Information on certain other health-related items has been collected in the survey periodically, usually at intervals from two to five years. In the early years of the survey, these topics were described as rotating items and consisted of measures such as mobility limitation due to chronic illness, dental care, and the proportion of hospital bills paid by insurance. As the survey developed, there was an increasing demand for more detailed information about some of the core items, such as detailed data on types of injuries, the duration of activity limitation, the accessibility of physicians' services, and convalescence following hospitalization. The need for this information led to the expansion of certain areas of the basic questionnaire to provide for the collection of these data at periodic intervals, introducing a slightly different category of rotating items.

In addition, the questionnaire for a given year has usually included one or more special supplements. While most of the supplements were originally planned for a 1-year collection period, some of them deal with topics for which trend information is needed. Since the interview is the most efficient method of collecting this type of data, certain items are added to the basic questionnaire on a planned schedule. These items, which might be described as rotating supplements include such topics as smoking habits, health insurance coverage, X-ray exposure, home care, the use of special aids, and personal health expenses. Other supplements, particularly those dealing with specific chronic conditions or impairments, have been added to the questionnaire on a less regular basis.

APPENDIX D

EVALUATION OF SELECTED U.S. DEPARTMENT OF AGRICULTURE, NATIONAL CENTER FOR HEALTH STATISTICS AND CONSUMER PRICE INDEX PUBLICATIONS

Frequency of Publication (FR)

EVALUATION OF USDA, NCHS and CPI

	Title	Type	Concepts or Areas Covered	FR	Approx. PGS	Vocabulary Type	Vocabulary Grade	Illustrations	Special Features	Referral for Info
Agriculture	Take the Quiz	Foldout	Single (e.g. food buying)	I	2	NT	6th	Symbols, 2 color	Check-off list	Extension Serv. (General)
	Living with Change	Booklet	Single (e.g. money mgt.)	I	7	NT	6th	Cartoon drawings 2 color	Major questions	Extension Serv. (General)
	Picture Story Fact Sheet	Booklet	Single (e.g. energy saving)	I	3	NT	6th	Photographs on each page	Human interest	Bibliography
	Extension Service Review	Booklet	2-pg. Stories	BM	20-30	NT	9th	Chart of photo on each page	Human interest (Personalized)	Address of Others
	Journal of Extension	Booklet	2-5 Articles and special features.	BM	25-40	ST	12th	Some charts, few illustrations	Practical applications. Concepts in margin. Summary and footnotes	Footnotes
	Farm Index (ERS)	Booklet	2-5 pg. Descriptions of Research	M	15-20	ST + T	12th+	Illustration each page	Practical applications	Research cited List of Pub.
	Agricultural Research (ARS)	Booklet	2-5 pg. Descriptions of research	M	15-20	ST	12th	Photographs each page	Practical applications	Source cited in articles
Health	Newsletter (CHSS)	Booklet	Short notes	BM	5-10	NT	12th	Few illustrations	Information about system	Cited in notes
	Special Report	Booklet	Special report on important issue	I	5-10	ST	12th+	Charts, no illustrations	Trend data	NCHS address
	Advance Data Report	Booklet	Special report on vital issue	I	10-15	T	12th+	Charts, no illustrations	Trend data	NCHS address
	Monthly Vital Statistics Reports	Booklet	Vital statistics and brief analysis	M	5-10	T	12th+	Charts, no illustrations		NCHS address
	A Chart Book	Booklet	Dimensional charts of Research	A	40-50	ST	12th	Charts on each page. No narrative		NCHS address
	Vital and Health Statistics publications	Booklets	Results of specific studies. Descriptions of Methodology	I	25-100	ST - T	12th+	Some charts, few illustrations		
Price Index	News Release	Stapled pages	Monthly report of CPI changes	M	10-15	ST	12th	No illustrations, some charts		Tel of researcher
	CPI Detailed Report	Booklet	Report on CPI changes	M	15-30	T	12th+	No illustrations, charts		Footnotes BLS offices
	Special Reports	Booklet	Reports of importance of CPI	A	5-10	ST - T	12th+	No illustrations, charts		Footnotes
	BLS Reports	Booklet	Reports on special studies, methods, utilization	I	10+	ST -T	12th+	No illustrations, charts		Footnotes
	Statistical Reporter	Booklet	Current developments in labor statistics	M	25-50	ST	12th+	No illustrations, some charts		Within articles

KEY

Frequency of Publication (FR)

I - irregular
BM - bi-monthly
M - monthly
A - annual

Vocabulary Type

NT - non-technical
ST - semi-technical
T - technical

APPENDIX E

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS STAFF PERCEPTIONS OF EDUCATIONAL RESEARCH

Title: _____ Area: _____

1. How much impact do you think educational research has had on educational policy decisions made at the following levels?

	Level			
	Federal	State	Local	No Response
Considerable Impact	2	1		
Moderate Impact	7	4	1	
Some Impact	6	12	7	
Very Little Impact	4	3	10	
No Impact	1			1

2. How much impact do you think the type of educational research you have been involved in at National Assessment has on educational policy decisions made at the following levels?

	Level			
	Federal	State	Local	No Response
Considerable Impact				
Moderate Impact	6	7	1	
Some Impact	6	8	9	
Very Little Impact	8	5	10	
No Impact				

3. How much utilization do you feel the following groups make of educational research data?

	Utilization					
	Considerable	Moderate	Some	Very Little	None	No Response
Teachers		3	5	10	1	
School Board Members			4	13	3	
School Administrators		3	9	5	3	
Students				9	11	
Parents		1	1	13	5	
State Education Personnel	3	7	10			
Federal Educational Agency Personnel	2	8	7	1	1	1
Educational Researchers	13	6	1			
College of Education Professors	3	11	5	1		
State Legislators		2	8	9		
Federal Legislators		4	9	7		

4. How much utilization do you feel the following groups make of National Assessment data?

	Utilization					
	Considerable	Moderate	Some	Very Little	None	No Response
Teachers			10	8	2	
School Board Members			6	11	3	
School Administrators		3	3	14		
Students				6	14	
Parents			4	7		
State Education Personnel	1	8	11			
Federal Educational Agency Personnel		7	7	6		1
Educational Researchers	2	5	10	3		
College of Education Professors	1	4	9	5	1	
State Legislators		1	9	10		
Federal Legislator		2	6	11		

5. Rank from one to eight the following types of research in terms of the impact of research on the general public, (i.e., the amount of attention paid by the public to the research--one for the most attention to eight for the least.

6 Agricultural research
2 Aerospace research
7 Biological research
3 Economic research (e.g., marketing research)
8 Educational research
5 Industrial research (e.g., product development)
1 Medical research
9 Sociological research

6. Which one of the following statements best describes how you feel about the future impact of educational research?

11 Educational research will have an increasing impact on educational policy in the next five years.

7 Educational research will have about the same impact it does now on educational policy in next five years.

____ Educational research will have a decreasing impact on educational policy in the next five years.

7. Which one of the following statements best describes how you feel about the future impact of NAEP data.

16 NAEP data will have an increasing impact on educational policy in the next five years.

2 NAEP data will have about the same impact it does now on educational policy in the next five years.

8. In terms of recognition of the importance of research within the profession, do you feel that educational researchers receive less, about the same or more recognition than the following types of researchers?

	Amount of Recognition				
	Less	About the Same	More	I don't Know	No Response
Agricultural researchers		4	3		1
Aerospace researchers		1	1		1
Biological researchers		3	1		1
Economic researchers		4			1
Industrial Researchers		6	1		1
Medical researchers					1
Sociological researchers			5	1	1

9. Name two conditions or problems that you feel may impede the utilization of educational research data by the following groups:

State and/or National legislators

1. (see pp. 33-34)
2.

State Departments of education

1. (see pp. 35-36)
2.

Local school district (personnel, school board members, others)

1. (see pp. 36-37)
2.

Name two conditions or problems that you feel may impede the utilization of educational research data by the following groups:

State and/or National Legislators

1. Lack of readable summaries of educational research.

Complexity of information in description.

Research data not written in concise, clear form.

Research is often incomprehensible.

Too bureaucratic -- political power groups/since taking research into consideration means reallocation of funds.

Funds not available for implementation.

Lack of procedures ("what to do") when problems are noted?

Number of staff capable of understanding results implications of research.

Political considerations are more important than use of data in decision making. (Their assumption may be that money solves problems/increases quality of education.)

The need for more definitive data.

The long "production time" of gathering research data, when most policy issues need to be resolved immediately, (or so it is thought).

Illiteracy.

Poor communication by researchers.

Politics.

Lack of time to give priority attention to education issues.

Lack of communication with educators.

Lack of time to deal with the data properly or too bulky -- not condensed to useable form. Just too much. Too many studies doing same thing. Not coordinated.

NOTE: Two no responses.

Name two conditions or problems that you feel may impede the utilization of educational research data by the following groups:

State and/or National Legislators

2. Lack of well defined general theory.

Conflicting information

Poor contact with legislative staffs.

Contradictory and not prescriptive results.

Programmatic implications from research unclear.

Lack of overall perspective of an educational research design.

Slowness of data.

Data from sufficient studies do not create an integrated picture of the state of education or problems that need attention.

The need to make data understandable such that conclusions may be drawn from it.

Obsecure and irreleyant reports.

Lack of understanding by legislators ("trust" - "credibility").

The unwillingness to take time to read the research.

Mistrust of educators.

Lack of interest; i.e., education is not in the public eye a politically "hot" issue to concentrate on.

The wanning quality of education research.

NOTE: Four no responses.

Name two conditions or problems that you feel may impede the utilization of educational research data by the following groups:

State Departments of Education

1. The need for more definitive data.

Lack of readable summaries of educational research.

Complexity of information in description.

Lack of time and funds to make practical use of research data.

Research not conclusive -- can divide into factions.

For most part too bureaucratic.

Funds.

Lack of procedures ("what to do") when problems are noted?

Number of staff capable of understanding results implications of research.

Lag time between current fads and research.

Budget problems.

Lack of funds to adequately implement new education programs.

Politics, lack of staff expertise, money.

Poor communication systems to LEA's.

Budget problems.

Growth of collective bargaining may well "back out" certain educational options that research may suggest are not effective (e.g., teacher/pupil ratio limits are "bargained" increasingly. Even if research concluded that effective teaching could take place within ratios as high as 1.50, bargaining agreements would preclude such an option).

NOTE: Three no responses.

Name two conditions or problems that you feel may impede the utilization of educational research data by the following groups:

State Departments of Education

2. The need to make data understandable such that conclusions may be drawn from it.

Lack of sophistication needed to understand research.

Conflicting information.

Data not in form that can be practically utilized by state departments.

Not well enough organized -- no way of getting hold of all data.

Too uninvolved in actual education.

Funds. There are more pressing social issues to be dealt with unrelated to or unaffected by existing research.

Laziness.

Lack of staff to implement program changes as a result of research.

Dissemination problems.

Budget. Each department within state department doing their own thing. No coordination.

Lack of specialist or trained personnel to be the coordinator between state and local school districts.

Emotional turmoil caused by some research and testing programs.

Weak position of research group within state departments.

NOTE: Five no responses.

Name two conditions or problems that you feel may impede the utilization of educational research data by the following groups:

Local School District (Personnel, School Board Members, Others)

1. The need for more definitive data.

Research needs to be interpreted for classroom implications.

Lack of good readable summaries of educational research.

Complexity of information in description.

Interpretation of research data in form that can be utilized in classroom.

Studies don't give clear mandate for action.

A natural district of "statistics" (too far removed from "real" world).

Many local school districts cannot afford duplication of, i.e., NAEP model.

Funds not available for implementation.

Lack of procedures ("what to do") when problems are noted.

Number of staff capable of understanding results-implications of research.

Local decisions need to be based on some type of local data.

As with most behavioral research, the lack of unequivocal findings is often more confusing than helpful to the practitioner.

Ignorance of literature.

Lack of funds. Doesn't apply to our local district -- we're okay. Too many often pressing school problems.

Lack of local utility of most education research.

Local school people need training or leadership for utilizing this data into useable programs in schools.

Resources (money, staff expertise, lack of).

Lack of definitive studies -- "answers."

NOTE: Total response.

Name two conditions or problems that you feel may impede the utilization of educational research data by the following groups:

Local School District (Personnel, School Board Members, Others)

2. The need to make data understandable such that conclusions may be drawn from it.

- Classroom implications.

Lack of sophistication needed to understand research reports.

Conflicting information.

Conflicting research on same problem.

Results often contradictory.

An inability to understand the foundations of the research.

- Locals perceive national education research, doesn't relate to their problems.

Competing aspects of social policies at local level, e.g., there are more pressing social issues to be dealt with, unrelated or unaffected by existing research.

Insularity -- "this doesn't apply to our unique, etc."

Lack of staff to implement program changes as a result of research.

Lack of scientific training by these people makes it unlikely that they can understand specific research results, whereas they could understand and use generalizations about cause and effect if researchers could do adequate studies to get them this information.

Obsecure and irrelevant reports.

In small districts, the lack of qualified personnel to work with the data.

Need funding to carry through these programs.

Lack of relevance and benefit to individual systems; not meeting the specific needs of individual systems.

"Fear" of numbers, statistics.

NOTE: Two no responses.