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ARTICULATION OF RESOURCES FOR RESEARCH UTILIZATION.

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AS A PREFACE TO A PANEL DISCUSSION, THE AUTHOR SPEAKS OF THE DEVELOPMENT IN RECENT YEARS OF A MULTILEVEL SET OF RESOURCES IN EDUCATION WHICH MAY PROVIDE A BASIS FOR BUILDING PROGRAMS THAT CAN FOSTER ADOPTION OF NEW EDUCATIONAL IDEAS AND PRACTICES. HE CALLS ATTENTION TO THE ALREADY INSTITUTED NATIONAL PROGRAMS AND CENTERS THAT PROVIDE EDUCATIONAL RESEARCH AND INFORMATION DISSEMINATION, INCLUDING 20 REGIONAL EDUCATIONAL LABORATORIES, 11 RESEARCH AND DEVELOPMENT CENTERS, AND 14 INSTRUCTIONAL MATERIALS CENTERS, THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC), THE SCHOOL RESEARCH INFORMATION SERVICES (SRIS), AND THE EDUCATIONAL PRODUCTS INFORMATION EXCHANGE (EPIE). THE AUTHOR PRESENTS FOR FUTURE PROGRAMS FIVE LINES OF GENERAL DEVELOPMENT THAT WOULD ACT IN SUPPORT OF A NATIONAL EDUCATIONAL NETWORK--(1) A MULTILEVEL COMMUNICATION NETWORK BASED ON SPECIALIZED INFORMATION PROCESSING AND TRANSFERRING ORGANIZATIONS THAT ARE BOUND TOGETHER BY FUNCTIONAL LINKAGES, (2) ARTICULATION OF THE MUTUALLY DEPENDENT ROLES OF "IN-HOUSE" INFORMATION PROCESSORS AND "FIELD-ORIENTED" CHANGE AGENTS, (3) DEVELOPMENT OF RESEARCH PROGRAMS THAT CAN PROVIDE GUIDANCE FOR INTEGRATING INFORMATION SYSTEMS THEORY WITH THEORETICAL FORMULATIONS OF DISCIPLINES RELEVANT TO UNDERSTANDING THE CHANGE PROCESS, (4) DEVELOPMENT OF NECESSARY TRAINING PROGRAMS, TRAINING AIDS, AND OPERATIONAL MANUALS TO PROVIDE THE SKILLS NEEDED BY INDIVIDUALS NOW ENGAGED IN CHANGE-FACILITATING ROLES, AND (5) DEVELOPMENT OF A COMMUNITY OF INTEREST FOR SUSTAINED WORK TOWARD ARTICULATION OF RESEARCH, TRAINING, AND OPERATIONAL PROGRAMS RELATED TO CHANGE. AMPLIFICATION OF THESE GENERAL GUIDELINES INCLUDES COMMENTS ON MAINTENANCE AND ACQUISITION OF DOCUMENTS, LOCAL AND REGIONAL CENTERS AS WELL AS A NATIONAL NETWORK, AND THE INTEGRATION OF ALL SYSTEMS WHICH CAN PROVIDE REQUESTED INFORMATION ON EITHER A LOCAL OR NATIONAL LEVEL. (FM)

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# Articulation of Resources for Research Utilization

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One of the noteworthy developments in American education in the last few years has been the emergence of a multi-level set of resources which, for the first time, may provide the basis for building programs that can foster widespread adoption of new ideas and practices. The dimensions of this structure are not known precisely. Some of the salient elements that can be identified include:

• New national programs such as ERIC, SRIS, EPIE[1/] as back-stopping resources for change programs of local and State agencies or Regional Educational Laboratories.

• The 20 Regional Educational Laboratories, each of which is assuming active roles as change agents for installing new programs in local school districts.

• The 11 Research and Development Centers, each of which has numerous roles as a change-agent.

The 14 instructional materials centers established by the Bureau of Education for the Handicapped, USOE, each of which acquires and may evaluate materials, develops or stimulates production of new materials, and disseminates information about all of these.

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1/ ERIC stands for the Educational Resources Information Center. For further information, see Lee G. Burchinal, "ERIC and the Dissemination of Research Findings," Theory into Practice, 6 (April, 1967), 77-84. SRIS stands for the School Research Information Services. For further information see SRIS Quarterly, 1 (Winter, 1967). EPIE stands for the Educational Products Information Exchange. For further information, see the EPIE Forum, published by EPIE, 52 Vanderbilt Avenue, New York, N. Y.

• The 56 State agencies, with their many change-facilitating resources, including their guidance and development roles as well as their application of reward systems for inducing changes.

• The many planning, information transfer, materials or resources centers funded under Title III, ESEA, many of which are functioning as local one-stop information centers[2/] and as mediators between knowledge-producers and educational practitioners.[3/]

In addition, educational researchers have continued to analyze the change process, develop models, and, to a lesser extent, have begun to apply the theory represented by these models to the practice of influencing change.[4/]

These developments in a few short years are little short of remarkable, coming as they have, from independent decisions made in many different educational settings. At the same time, a price has been exacted for the rapid development of these resources. Information systems such as ERIC and dissemination programs of Regional Educational Laboratories and State and local agencies have been developing independently and apart from their ultimate users--teachers, administrators, local researchers

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2/ Lee G. Burchinal, "Needed: Local, One-stop Information Service Centers," Educational Researcher, Official Newsletter of the American Educational Research Association, Supplement, 1967, 8-9.

3/ See Appendix A for the list of types of Title III projects funded in FY 1966 that were designed to combine dissemination and active change-agent roles.

4/ See Appendix B for lists of research reports on change processes received by the Bureau of Research, USOE, and information about on-going research or change supported through the Bureau of Research. These bibliographies are based on the ERIC index bulletins described in Appendix C.

and the public. Theoretical knowledge for developing change-installing programs has not been adequately translated into operating principles for use by local and State personnel. With few exceptions, universities have failed to develop either institute or degree programs of the types or in the number required to produce the change-agents needed. Little constructive action will arise from listing other sins of commission or ommission committed in the name of dissemination. Each of you can complete your own catalog. Now, however, we have a chance to grab our breath and to plan for more effective application of resources to acceleration of change.

I am pleased to have the opportunity to present my views on this subject. My remarks will be general, and tend to veer toward a national network perspective. These views will be corrected, as necessary, I am sure, by our three panelists. In my view, five lines of development are needed if we seriously intend to promote widespread installation of promising programs before they have outlived their usefulness. These are:

1. Further development of a multi-level communication network based on specialized information processing and transferring organizations that are bound together by functional linkages.

2. Within the context of the concept of a national educational communication network, articulation of the mutually dependent roles of "in-house" information processors and "field-oriented" change agents.

3. Development of research programs that can provide guidance for integrating information systems theory with theoretical formulations of disciplines relevant to understanding the change process.

4. Development of necessary training programs, training aids, and operational manuals to provide the skills needed by individuals now engaged in change-facilitating roles and continued development of these programs and materials for improved training of the next generation of change-agents.

5. Development of a community of interest for sustained work toward articulation of research, training and operational programs related to change.

Now, for elaboration of each point.

Developing an educational communication network

Numerous independent decisions over the past three years have resulted in development of today's multi-level network of information-transfer resources in education. These resources are operating as a loose network with varying degrees of communication and functional linkages. One way to focus these resources for facilitating change is to consider each unit as a link in an emerging national educational communication network. In the most elementary form, the emerging network can be structured at two levels: (1) national systems such as ERIC, SRIS, and EPIE, for example; and (2) local one-stop information service centers. (As us 1 here, local may refer to an organization in a State agency or Regional Educational Laboratory as well as local educational agency). The national systems can specialize in widespread collection of new information--at least that which can be captured in a document--and can make documents available quickly and inexpensively to anyone or any organization that wants it. Local centers can act as the "switching points" or mediators between the knowledge-producers and the practitioners. The value of each

for facilitating change in education will depend upon the functional linkages that can be developed among them.

Beginning with one national system, local centers can build upon the efforts organized through ERIC by acquiring any or all of the following:[5/]

• Research in Education, ERIC's monthly abstract and index bulletin. The January, 1968, issue, in an improved format included about 500 reports: by June each issue will contain about 700 reports. Information about new projects funded through the Bureau of Research will continue to be provided in each issue.

• Microfiche or hard copy collections of all documents cited as available in Research in Education or in special collections produced through ERIC. Right now, the ERIC collection stands at about 6,000 documents. These cost about $800 on microfiche. During the present calendar year, another 8,000 to 10,000 screened documents will be added to the collection.

• The ERIC Thesaurus, and, this fall, reference volumes describing how to use other Government and private information services and an operational handbook for running local information centers.

• Hundreds of newsletters, bibliographies, reviews and interpretations of research, and monographs being produced by the ERIC clearinghouses.

• An indexing service for hundreds of journals relevant to education--hopefully before 1969.

• And in about two years, arrangements will be completed to permit remote interrogation of the entire ERIC collection.

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[5/] See Appendix C for further information on ERIC products.

Local centers can now acquire ERIC materials and become facile with the thesaurus so that when computer links are established, these aids will fall naturally into a developed communication network. These centers also can draw upon the resources of SRIS and EPIE. Acquisition of materials, however, is only the starting point for the change-facilitating aids local one-stop information service centers can provide. Local centers can provide the setting for the articulation of two sets of roles that have not been closely related in education--a point we turn to now.

Articulation of "in-house" information processing roles and "field-oriented" change-agent roles

"In-house" information processing roles can be defined and operationalized with some ease. Included among relevant activities are document acquisition procedures, document file maintenance, search systems, reference activity--all that is required to search for and produce needed information. Procedures for conducting these activities have been well developed by librarians and information scientists. Advances in applying communications and behavioral science theory to development of change-facilitating programs are less spectacular. Now, however, local information centers may provide the setting for clarifying the latter roles and linking them with information processing roles. Researchers, conceptualizers, directors of training programs, and administrators of change-facilitating programs, could well examine this articulation problem and execution of change strategies in light of the following services that only can be provided well through local, one-stop information centers that are located within the working environment of users:

• Development and maintenance of a front-line collection of materials upon which change programs can be based. Local centers can become comprehensive depositories and organizers of knowledge. Think of the knowledge that could be made readily available to any educator if local centers were to receive the output from national systems such as ERIC, SRIS, and EPIE, and if they were to acquire a few abstract bulletins for journal literature and basic reference books in education. In addition, local centers can undertake systematic collection of locally-produced documents to augment those received from sources outside the geographical area served. High quality, locally-produced documents could be indexed locally with the ERIC thesaurus and merged with the local ERIC holdings. Replies to requests for information from local educators would then include documents produced locally as well as those from the far side of the country. Some of the local documents also would be valuable for movement up the system to ERIC or SRIS for reproduction and automatic distribution to information centers and individual users around the country. Collection could be organized on a school-district basis for large systems; on a State basis, particularly for reports from Federally-funded programs administered by States; by Regional Educational Laboratories; or possibly through the SRIS network. As Title III (ESEA) is shifted to State administration, it will be important to develop procedures to ensure that all significant reports from these projects are made available to educators in all parts of the country. Some combination of local, State, ERIC and SRIS resources could provide the answer.

Document acquisition and file maintenance is an in-house function. Payoff for these activities begins when educators actually use the documents. Hence, the visible service function of local centers begins with the search and reference activities they can provide for users.

• Provide search and reference services. Local centers, with their staff of information and education specialists can help local educators quickly locate information on matters of interest to them. The combined files of materials acquired from the national systems and those developed from local sources can be drawn upon in preparing replies to local requests. Searches can also be widened to include journal articles and reference books. For unusual requests reference staff can draw upon resources of specialized libraries, ERIC clearinghouses, or specialized information centers operated by various Government agencies. The latter includes the National Referral Center, Science Information Exchange, Clearinghouse for Mental Health Information, the Science Information Centers of the National Institute of Child Health and Human Development and the Federal Clearinghouse for Scientific and Technical Information. Some information about how to use the services of Federal information systems other than ERIC has been provided,[6/] and two reference volumes containing detailed descriptions about most major information systems and sources of information in the United States are under preparation.[7/]

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[6/] See Burchinal, Theory into Practice, op. cit.; and Burchinal, Educational Research, op. cit.

[7/] Both are described in the later section on training and training aids.

Responding to inquiries has been placed at the local level (maybe State or Regional Educational Laboratory). A number of reasons suggest that information provided within the context of a human communication context at a local level, in contrast to writing to a distant place, will contribute more effectively to building commitment for using the information for developing new programs. The local center can develop a clientele relationship with its users. With their knowledge of local educational conditions, center staff can translate the user's expression of need into the formal language of index terms and can match the documents retrieved to the user's interests. By providing individualized services and providing quickly the information desired, the center can reinforce information seeking among educators and help create a climate that encourages new approaches to problems.

The importance of providing local comprehensive information services has been stressed because neither Central ERIC in the Office of Education nor any of the 18 ERIC clearinghouses can provide the individualized or depth services needed to reply quickly and adequately to inquiries received. Over 600 letters are received monthly by Central ERIC in the Office of Education and about half that many by some ERIC clearinghouses. For the most part, form letters must be used to answer these inquiries. Little reference or search service can be provided. Potential change provocaters are hardly reinforced in their attempts to discover new knowledge. Moreover, requests for help are received from educators in districts that have local centers. Everyone would benefit if requests for information received

in Central ERIC or any of the ERIC clearinghouses from persons in an area served by a local center were referred to that center for appropriate handling. Such an arrangement could be established easily. All that is needed is an inventory that lists all local centers with collections of ERIC materials that are prepared to provide at least limited services to local educators. The Bureau of Research, USOE, will soon undertake support of such a survey. The resulting inventory of service organizations should be valuable as well in establishing some of parameters of the emerging education communication network in the United States.

In emphasizing the value of locally-provided services for practitioners, I did not mean to imply that ERIC clearinghouses cannot or will not respond to inquiries from other information services. Quite the opposite. ERIC clearinghouses are a national referral resource and are prepared to provide assistance to local centers. For instance, unusual or very complex requests can be referred to the appropriate clearinghouse. Most inquiries, however, can be much better handled by local staff.

Analysis, synthesis, interpretation and selective dissemination of information. ERIC and other systems, for the most part, deliver "raw" reports. Refined products, reviews and interpretative summaries, are prepared as well. But the local center can take the dissemination process several important steps further. With its information-handling capabilities and intimate knowledge of local conditions, local staff can select, synthesize, and interpret materials from all sources in light of the unique local constraints impinging on the schools. Content, style, and format can be selected to be match to the interests of the intended audience. Policy

decisions or requests for information can be used to guide selection of topics around which the locally-produced interpretative summaries or selective dissemination packages are developed. The imagination, size of the staff and funding level of the center are perhaps the only limitations to the range of tailor-made or repackaged services local centers can provide.

• Promotion of installation of new practices. Now we leave the "in-house" information processing and analysis roles of the local center and step into the less clearly defined change-agent roles. Most conceptions of change-agent roles begin with the assumption that the change-agent has access to all knowledge pertinent to the issue before him. Combining his roles with those of a local information center will help convert this assumption into reality. Time will not permit elaboration of change-agent roles and application of change strategies. Perhaps the panelists will want to comment on these points.

The last point on roles of local centers brings us back to the theme of functional linkages.

• Providing "feedback" to change-facilitating units "up the line." Another important role local centers can provide is to keep universities, State agencies, Regional Educational Laboratories, and national systems informed about the information requirements of local schools and educational practitioners. From their daily experience, local centers can provide reactions to the usefulness of the ERIC Thesaurus, adequacy of indexing and the quality of documents processed by ERIC or SRIS, usefulness

of research for application in change programs, the efficacy of models for guiding selection of change strategies, and the revelance of training programs to the personnel needs of programs designed to promote installation of innovations.

In addition to considering articulation of the information-processing and change-agent roles within the context of local centers, researchers and conceptualizers also should examine the ways in which the unique capabilities and constraints of Regional Educational Laboratories and State agencies can be used to direct change processes. A few ideas along these lines follow.

With their research skills and conceptual competencies Regional Educational Laboratories can provide an important linkage in the change process. Each Laboratory can be a collecting point, not only of documents but also of knowledge passed on as verbal communication within the many invisible colleges in which they participate. Further, through their varied programs, Laboratories can apply this knowledge to school programs in the areas served. In their position below the national scene, yet broader than one district or State, Laboratories may be in a unique position to develop programs that are based on a sound conceptual basis and, at the same time, square with change requirements in the classroom. Laboratories also provide a powerful setting for organizing a systematic program of case studies for analyzing installation processes in the schools. In their roles as developers of instructional materials and perscriptions, Laboratories have a unique capability to perform the functions Clark and Hopkins refer to as the "installation and servicing" of innovations. Laboratories could become uniquely qualified to assist local educational units in adapting an innovation to local conditions and to provide continuity in revising and

installing an innovation before it is fully "set" in the local district.

Laboratories also can be brokers or clearinghouses for referring educators to sites in which an innovation is being tested or has been installed successfully. Laboratories may also develop cooperative programs--functional linkages--with local information centers for repacking and disseminating information on a regional basis. Working in the other direction as well, Laboratories could be important "listening posts" for feeding information requirements from local schools back to the managers of national systems.

State agencies can combine information "middle-man" roles with their powers of persuation and regulatory or reporting functions to reward or encourage recommended changes. The reporting function, for instance, can be used for systematic collection, collation, and ranking of information needs from local agencies.

State agencies could then prepare some information products or they could serve in a "listening post" function for Regional Education Laboratories, professional organizations, ERIC, or other systems. In addition, State agencies can promote widespread installation of innovations through application of their Governmental powers. As the responsible Governmental organization for education in the United States, State agencies can apply research information to reformulate educational law, regulations, and policy to help establish the conditions for change in the local schools, and can promote changes in teacher education and certification that could have far-reaching effects for change. Also, through their publications, consultation roles, and supervisory responsibilities, State agencies can provide the educational equivalent of county agents. These staff would

probably have a wider repertoire as change agents than the county agricultural agent since they are able to use supervisory tools other than persuasion to encourage change. Appropriate and differentiated rewards could be provided for schools making research-indicated changes.

Developing Research for guiding installation of new programs

Models for directing change are available from agriculture, medicine, industry, and military settings. Their efficacy for use in education needs to be examined through careful conceptual analysis. This effort could well be buttressed by a systematic program of detailed case studies of innovations which are being installed, have been installed, and have failed in order to specify conditions under which the installation process works for different types of innovations and in different educational settings. Included in such studies should be analyses of the directions and characteristics of information flow in educational settings; the types of individuals who make decisions and commitments for others; and factors which inhibit such decisions and commitments.

A second set of research priorities could build upon the accomplishments of the market researcher and other business and industrial researchers and would include investigations of audience characteristics and reward systems, their information requirements, and criteria for message designs. Such techniques may well have as much efficacy in identifying how we can provide the conditions for persons to help themselves to improve their professional activities as they have had in persuading consumers to buy Brand A rather than Brand X.

Other research is needed on manpower requirements, criteria for training of persons who will become professional change-agents, and to enhance

functional linkages among change-facilitating resources such as local information centers, State agencies, Regional Educational Laboratories, and national information systems.

The foregoing research suggestions are meant to be illustrative. Apart from specifics, what is needed is a carefully articulated, multi-faced research program on educational change involving conceptual and theoretical studies, straightforward quality control and improvement research on the industrial model, audience and marketing research of the sort used in business and the communications field, and systems analysis and engineering applied to institutional and functional systems, not just electronic systems.

Training programs and in-service training aids needed

Lack of trained manpower remains one of the chief impediments to the further development of a national communication network for education. Information science personnel are already in short supply in other disciplines. To staff such positions in educational settings, personnel generally will have to be recruited first and then trained on the job. The same probably is true for most change-agent specialists. Some short-run, stop-gap approaches to training are possible; longer-run solutions must also be explored. The Division of Information Technology and Dissemination (DITD), Bureau of Research, USOE, has taken the initiative in developing several "quickie" training programs. Among these efforts are:

• Two 2-day workshops on the operation of local, one-stop centers: one was conducted for the Regional Research Coordinators of the Bureau of Research; and the other was for about 20 persons from the staffs of Title III projects. Staff in the Division of Information Technology and Dissemination designed and conducted these workshops. The outline for the course is

presented in Appendix E.

• Four presession programs designed to acquaint behavioral scientists and educators with the operation of major information systems and sources of information that might be pertinent to their interests. One of these programs was conducted twice on February 7, in conjunction with the 1968 AERA conference. The material used in the sessions will be made available as one of the reference volumes referred to in a minute.

• Numerous presession programs, booths, exhibits, or symposia organized and conducted by staff of ERIC clearinghouses at professional organizations.

Additional training programs and operational aids are being developed under sponsorship of the DITD, including:

• Six one-week workshops or seminars to be held in the summer, 1968, to provide training in the operation of local information centers. Attendance will be limited to staff of local and State educational agencies, Regional Educational Laboratories or others involved with Office of Education-supported information processing projects. Write to me and information will be sent to you as soon as it is available, probably sometime in late March, 1968.

• Preparation of an operating manual for use by staff in local information centers. Principles developed from the operating experience of ERIC clearinghouses and information analysis centers and special libraries operated for the benefit of other disciplines are being examined, culled, and organized for application to the development and operation of local information centers. The manual will become an instructional resource in the summer workshops, will be revised if necessary, and then will be made widely available--hopefully by late fall, 1968.

• Two reference volumes; one describes information systems in science and technology and how to use them; the other (by Dr. Altman) does the same for information systems in education and the behavioral sciences. Both will be used in the summer workshops and should be available generally in late fall, 1968.

• A simple brochure, "ERIC: What It Is and How to Use It," written for use by the educational practitioner. Thought also is being given to development of a more complex self-instructional manual on how to develop search strategies using Research in Education, other ERIC indexes, and the ERIC Thesaurus. The latter document would help persons use SRIS more effectively as well.

All publications described in these remarks, including a possible inventory of the organizations engaged in information transfer in education, will be announced and indexed in Research in Education as well as elsewhere.

The foregoing efforts are only a start. Additional education and training programs need to be pursued and new ones developed including:

• Encouraging staff at local centers to enroll in library and information courses at universities; or, if none appear appropriate for their needs, working with universities in developing more appropriate courses or institutes. Institutes can be supported under the Library and Information Services and Educational Facilities, Bureau of Adult, Vocational and Library Programs, USOE. And, when the Educational Professions Development Act becomes operative, additional programs training information processing and change-agent specialists of local centers will be possible.

• Participating in the Special Interest Group in the behavioral sciences or in the pre-session training programs conducted in conjunction with the annual conference of the American Association of Information Science (formerly American Documentation Institute). The coming meeting of AAIS will be in Columbus, Ohio, October, 1968. For information write to AAIS, 2000 P Street, NW., Washington, D.C. 20036.

• Developing one or more pre-session programs on information transfer and change-agent processes at next year's AERA program. With the increased emphasis given to dissemination and installation of new practices there should be many potential trainees for such programs.

• Developing degree as well as recurring institute programs designed to produce practitioners of the change-process. Universities need to develop such programs in addition to their expansion of training programs for R&D specialists. These programs should include training in educational processes, the behavioral, information, and communication sciences, research methods, particularly evaluation, plus a considerable practicum or directed field-work experience.

• Providing some training for all graduate students in uses of information systems and information-locating tools such as thesauri, indexes, catalogs, and other short-cut guides to sources of information. The next generation of administrators, researchers, development specialists, and change agents should receive during their graduate education a thorough grounding in basic concepts they will employ in using printed bulletins now and remote computer-based information systems three or five years from now. With such training, their information-gathering habits should be more efficient, and the probability

of transfer of new ideas may be increased. More sophisticated users also will permit development of more efficient and less expensive systems as measured by per unit cost of use. Furthermore, as technological innovations are applied to processing of educational literature, it will be even more important for authors to prepare materials that can be quickly and inexpensively incorporated into national information systems. Precise and informative titles, well-written abstracts, and well-organized papers will allow indexers to select appropriate key words quickly and precisely. The resulting reductions in unit processing costs and shortened processing time can be returned as benefits to the educational community. Schools of library science or departments of information science or communications should be able to provide lecturers or seminars on uses of information.

In addition to specific education and training programs, efforts need to be applied to developing means for communication among the diverse research, education and training, and operational interests now converging on facilitating changes in school programs. Briefly, this is the last point I wanted to discuss.

Developing communication among change-facilitating resources in education

Effective articulation of research, operational, and training resources relevant to change-processes in education will not come from one symposium. Much more effort on a sustained basis is required. Without some organizational framework it is hard to imagine how a sustained push can be developed. Therefore, two suggestions are offered. First, consideration should be given to organizing within AERA some other professional organization a division

for advancing communication among specialists interested in research, training, and operational programs related to change-processes in education. Perhaps the recent proposal for establishing a Division on Development and Research Utilization could be re-examined to include information system and related change-agent operations before it is resubmitted to the executive council of AERA. Alternatives should be examined as well. Discussion of this suggestion will require time, and its outcome may remain in doubt for sometime. Meanwhile, we urgently need to establish closer linkages among existing and newly-established information service centers and other change-facilitating organizations.

Therefore, the second recommendation: in cooperation with appropriate professional organizations, the U.S. Office of Education could organize a working conference on articulation of research, training, and operational programs designed to advance educational change. The conference could provide an opportunity for specifying research goals, examining training programs, reviewing operational programs, and for moving toward closer articulation of these three lines of activity. New information tools, products, and training aids such as the reference books and operational manuals described earlier could be displayed and instruction in their use provided. Sessions could be devoted to "hands-on" training in the use of the ERIC thesaurus, index tools, catalogs, ordering of documents, and development of search strategies based on ERIC tools. The conference also would allow instant feedback on limitations in the design and operation of national systems and their interface with local information centers. Finally, the conference could help structure future courses of action for enhancing communication among specialists

concerned with information transfer and change in education.

If a positive reaction to this suggestion is received, plans could be started immediately. The actual date and place would have to be determined later, but the earliest feasible date probably would be sometime in the fall, 1968.

Now, I must ask you to pull back from thinking about a possible conference and give attention to the reactions and ideas of our three panelists. From them we will hear about requirements for articulating local and national information resources from the perspective of individuals working at the local, State and Regional Educational Laboratory level.

# APPENDIX A

## Information, Materials and Resource Centers Funded Under Title III, ESEA, Fiscal Year 1966

Following are titles of projects funded under Title III, ESEA, in Fiscal Year 1966 that illustrate the information processing and dissemination roles now being developed by local educational agencies. Projects are grouped under three major headings or descriptive terms. The ES designation for each project refers to its number in PACESETTERS IN EDUCATION, Fiscal Year 1966, a reference bulletin prepared through ERIC, and available from the Government Printing Office as OE 20103 for $2.50. The volume contains resumes for each project and indexes for identifying projects of interest. The full text of the work statement or plan of operation for each project is available from the ERIC Document Reproduction Service for 25 cents per microfiche (not 9 cents as listed in the resume) for individual documents. The new price was effective with the new contract for the ERIC Document Reproduction Service that went into effect in December, 1967. Documents also can be obtained at 4 cents per page in "hard copy" or ready to read pamphlet form.

In PACESETTERS IN EDUCATION, Fiscal Year 1966, there is listed 20 projects designed as local demonstration centers, 18 as local information dissemination projects, and 144 as instructional materials centers and resource centers. Titles for illustrative projects in each category include:

### Demonstration Centers

ES 000 402. Establishment of a demonstration center for purposes of in-service training of newly appointed and tenured teachers of the mentally retarded in a supervised setting where action research can be translated into everyday practice. N.Y., Buffalo, City School District. 37 pp.

ES 000 405. Establishment and maintenance of a center for the demonstration of computer-aided instructional systems and other complex educational media. N.Y., Bedford Hills, Westchester County Board of Education Services. 46 pp.

### Information Dissemination

ES 000 409. Planning of educational research and information services center for Montgomery County, Pennsylvania. Pa., Norristown, Montgomery County Board of School Director. 31 pp.

ES 000 415. Planning for the development of a supplementary educational center and services for Westchester County. N.Y., Port Chester, Westchester County Board of Education Services. 25 pp.

### Instructional Materials Centers & Resource Centers

ES 000 185. Rio Grande Valley Educational Service Center. Tex., Edinburg, Valley Association. Superior Education. 24 pp.

ES 000 332. Data Retrieval System. Calif., Beverly Hills, Unified School District. 39 pp.

ES 000 334. Application to plan a supplementary educational center for Contra Costa County. Calif., Pleasant Hill, Contra Costra County Superintendent. 82 pp.

ES 000 587. District of Columbia Educational Resources Center. D.C., Washington, Board of Education. 80 pp.

# APPENDIX B

## Research Reports and On-Going Projects on the Change Process Funded through the Bureau of Research, USOE

Following are two bibliographies: (1) a listing of reports received by ERIC that focus on change processes; and (2) a listing of on-going projects supported through the Bureau of Research that focus specifically on change processes. The first bibliography is based on available ERIC products, Research in Education and the Office of Education Reports 1956-1965. The second is based on a combination of the "project" sections of Research in Education and the Cumulative Project Information report prepared for Bureau of Research management purposes.

The full text of all reports listed are available by their ED numbers through the ERIC Document Reproduction Service for either 25 cents per fiche (not 9 cents as listed in the resume) for individual documents or 8.4 cents per fiche if an order is placed for all new documents cited in Research in Education or all documents included in one of the special ERIC collections. Copies cost 4 cents per page in hard copy or ready to read pamphlet form. (See Appendix C for information about the special ERIC collections). Copies of the work plan for on-going projects are not available from ERIC or the Bureau of Research. The most likely source for these is the director of the project.

### Reports in ERIC on Change Processes

#### Change Research Methodology

ED 003 120. Planning and dissemination conference on novel strategies and tactics for field studies of new educational media demonstrations. Eboch, Sidney C. and others. Ohio State University, Columbus, Research Foundation. 1965. 185 pp.

ED 011 146. Criteria for methodological adequacy for research on educational change. Gephart, William J. 1965. 60 pp.

ED 011 404. Methodological Strategies for educational change. Guba, Egon G. 1965. 44 pp.

ED 011 990. A sensitivity training impact model--some first (and second) thoughts on the evaluation of sensitivity training. Explorations in human relations training and research, Number 3. Massarik, Fred. National Training Labs., Washington, D.C. 1965. 53 pp.

#### Change Strategies

ED 003 126. Traveling seminar and conference for the implementation of educational innovations. Richland, Malcolm. System Development Corp. Santa Monica, California 1965. 144 pp.

ED 003 134. Media and educational innovation, a symposium on identifying techniques and principles for gaining acceptance of research results of use of newer media in education, preliminary report. Meixerhenry, W.C. and others. Nebraska University, Lincoln. 1964. 354 pp.

ED 003 775. Conference on dissemination of information on newer educational media, report of National School Public Relations Association, Washington, D.C., December 19-21, 1960. Wilson, Roy K. National Education Association, Washington, D.C. 1960. 15 pp.

ED 010 214. Project models--Maximum opportunities for development and experimantation in learning in the schools. Klausmeier, Herbert J. and others. University of Wisconsin, Madison Campus Research and Development Center. 1966. 38 pp.

ED 010 225. Reference group orientation and teacher attitude toward school district reorganization. Brumbaugh, Robert B. University of Oregon, Eugene. 1966. 17 pp.

Change Processes & Determinants

ED 003 266. Education and social change--A study of the role of the school in a technically developing society in central Asia. Medlin, William K. and others. Michigan University, Ann Arbor, School of Education. 1965. 479 pp.

ED 003 685. Personal and organizational variables related to the adoption of educational innovations in liberal arts colleges. Davis, Richard H. Chicago University. 1965. 152 pp.

ED 010 164. Educational innovations in the community. Agger, Robert E. Goldstein, Marshall N. University of Oregon, Eugene. 1965. 357 pp.

ED 010 166. Relationship between instructional change and the extend to which school administraters and teachers agree on the location of responsibilities for administrative decisions. Eye, Blen G. and others. University of Wisconsin, Madison. 1966. 254 pp.

ED 010 197. Resistance to reorganization of school districts and Government in metropolitan areas. Simmer, Basil G. Hawley, Amos H. Brown University, Providence. 1966. 337 pp.

ED 010 223. The functions of research for educational administration. Hills, Jean. University of Oregon, Eugene. 1965. 21 pp.

ED 010 224. Issues and strategies in the public acceptance of educational change. Goldhammer, Keith. University of Oregon, Eugene. 1965. 27 pp.

ED 010 227. Incentive systems in educational organizations. Wallin, Herman A. University of Oregon, Eugene. 1966. 20 pp.

ED 010 228. An analysis of sources and processes of innovation in education. Pellegrin, Roland J. University of Oregon, Eugene. 1966. 40 pp.

ED 010 411. Factors which influence participation in adult education conferences and programs by members of professional associations. Booth, Alan. University of Nebraska, Lincoln. 1966. 88 pp.

ED 010 542. The university faculty and innovation--Theory, a research case history (television), implications. A social psychological analysis in depth. Evans, Richard I. Leppmann, Peter K. Houston Research Institute, Inc., Texas. 1965. 372 pp.

ED 010 913. A criterion paper on parameters of education. Final revision. Meierhenry. W.C. 1965. 34 pp.

ED 010 914. Criteria for the theoretical adequacy of conceptual framework of planned educational change. Broudy, Harry S. 32 pp.

ED 010 915. Organizational strategies for planned change in education. Culbertson, Jack A. 1965. 44 pp.

ED 011 101. Annual laboratories in community leadership training, 1966, Reading book. National Training Labs., Washington, D.C. 1966. 50 pp.

ED 011 147. The configurational theory of innovation diffusion. Bhola, Harbans Singh. Ohio State University, Columbus, School of Education, 1965. 47 pp.

ED 011 188. A study of innovations in Californ Junior College Evening Divisions, Part II. Price, Carroll S. 1966. 48 pp.

ED 011 297. A study of the diffusion process of vocational education innovations. Michigan State Board of Education, Lansing. 1967. 54 pp.

ED 011 322. Perspectives on the R and D center. Feinberg, Harriet. 1966. 43 pp.

ED 011 365. Politics of university involvement in social change. Campbell, Alan K. Center for the Study of Liberal Education for Adults. 1967. 18 pp.

ED 011 403. The change continuum and its relation to the Illinois plan for program development for gifted children. Guba, Egon G. 1966. 36 pp.

ED 011 405. The impending research explosion and educational practice. Guba, Egon G. 1965. 26 pp.

ED 011 472. Brass ring thinking. Mallan, John Creason, Frank. 1965. 18 pp.

ED 011 569. The Jackson County story, a case study. Goldhammer, Keith Farner, Frank. Oregon University, Eugene. 1965. 60 pp.

ED 011 570. Change processes in the public schools. Carlson, Richard O. and others. Oregon University, Eugene. 1965.

ED 011 571. Adoption of educational innovations. Carlson, Richard O. Oregon University, Eugene. 1965.

ED 011 949. Closing the gap--research and practice. Dreyfus, Lee S. Wisconsin University, Madison. 1966. 16 pp.

ED 011 958. Social factors in the adoption of new teaching-learning techniques in the elementary school. Acceptance of new education practices by elementary school teachers. Gottlieb, David Brookover, Wilbur B. Michigan State University, East Lansing. 1966. 237 pp.

ED 011 959. A procedural and cost analysis study of media in instructional systems development, Parts A and B. Barson, John Jones, Gardner M. Michigan State University, East Lansing. 1965. 279 pp.

ED 011 989. Reading book, twentieth annual summer laboratories in human relations training. National Training Labs., Washington, D.C. 1966. 122 pp.

ED 011 991. Towards a sociological theory for extension. Tully, Joan. 1966.

ED 012 103. Training for research utilization. Miles, Matthew B. 1966. 11 pp.

ED 012 109. Teachers' lack of familiarity with research techniques as a problem for effective research dissemination. Drahmer, Edward. North Dakota University, Grand Forks. 1967. 23 pp.

Dissemination Techniques

ED 003 388. The investigation of a method for the dissemination of educational research findings to practitioners. Donley, Donald T. and others. State University of N.Y., Albany. 1965. 72 pp.

ED 003 728. A project to improve the dissemination of information about new instructional materials and their uses in education in the schools within the State. Cypher, Irene F. and others. New York State Audio Visual Council, East Meadow. 1960. 107 pp.

ED 003 778. National workshop on educational media demonstrations. Final report. Kemp, Jerrold E. San Jose State College, California. 1962. 31 pp.

ED 010 372. Participant followup study--the part lectures, a case study in knowledge dissemination and utilization, Volume 2. Cook, Desmond L. Ohio State University, College of Education, Columbus, 1966. 79 pp.

ED 011 075. A pilot project on dissemination of information to higher education personnel. Final report. Baird, Karen. Wayne State Univ. Detroit, Michigan. 1965. 26 pp.

ED 011 567. Communication and status--the dynamics of a research center. Smith, Alfred G. Oregon University, Eugene. 1966.

ED 012 269. Research information--national, State and local needs, roles and services as viewed by Kentucky local system district personnel. Kentucky State Department of Education, Frankfort. 1967. 52 pp.

Information & Dissemination Systems

ED 003 480. Planning and utilization of a regional data bank for educational research purposes. Final report. Carroll, John B. and others. Harvard University, Cambridge, Massachusetts, Laboratory Resources in Instruction. 158 pp.

ED 003 522. A vocational-technical teacher technology center--the development of a model. Final report. Larson, Milton E. O'Neill, John J. Rutgers, the State University, New Brunswick, New Jersey. 1965. 68 pp.

ED 003 631. The need for and feasibility of regional educational media research organizations with a regional research improvement orientation. Lee, Allen and others. Oregon State Department of Education, Salem. 1962. 72 pp.

ED 003 776. Preparation of a complete and exhaustive file of research abstracts in the educational media field. Rutzler, Melanie G. Barhydt, Gordon C. Western Reserve University, Cleveland. 1963. 28 pp.

ED 03 777. An operating test of a pilot educational media research information center. Goldwyn. A. J. and others. Western Reserve University, Cleveland. 1965. 59 pp.

ED 010 128. Information transfer in educational research. Mersel, Jules and others. Informatics Inc., Sherman Oaks, California. 1966. 193 pp.

ED 011 042. National Vocational-technical education seminar of the development and coordination of research by State research coordinating units. Christensen, Virgil E. Ohio State University, Columbus, Center for Vocational and Technical Education. 1966. 87 pp.

## On-Going Projects on Change Supported Through Bureau of Research, USOE

Change Processes & Determinants

Effects of educational innovations for the culturally deprived on citizen support for the schools. Goldstein, Marshall and others. University of Oregon, Eugene.

An inter-university program for the development of designs for planned educational change. Fox, Robert. University of Michigan, Ann Arbor.

Issues and problems in contemporary educational administration. Goldhammer, Keith. University of Oregon, College of Education, Eugene.

Strategies for educational change. Blake, Virgil E. Ohio State University, Research Foundation, Columbus.

Personality characteristics of school superintendents in relation to their willingness to accept innovation in education. Carnie, George M. Utah State University, College of Education, Logan

A comparison of the effects of political variables and economic variables on educational policy outcomes in the American States. Dye, Thomas R. University of Georgia, Athens.

Attitudes change procedures suggested by contrast and assimilation phenomena. Gagne, Robert M. American Institute for Research in Behavioral Sciences, Pittsburgh.

Development of a social change methodology. Adkins, Winthrop R. YMCA of Greater New York, Brooklyn.

Exemplary utilization of innovative media systems--four case studies. Lybrand, William A. American University, Washington, D.C.

Adult education organizations relative to program development affecting innovative procedures and flexibility to change. Ringer, Wayne B. Chicago University, Illinois.

Prediction of adult educators attitudes toward changes in university policies. Apel, John D. University of Chicago, Graduate School of Education.

Differences in selected administrative behaviors among administrators in innovative and noninnovative public school systems. Klingenberg, Allen J. Michigan State Department of Public Instruction, Lansing.

A study of some factors facilitating and inhibiting the adoption and diffusion of new classroom practices. Fox, Robert S. and others. University of Michigan, Ann Arbor.

Effective communication in vocational agriculture. McCormick, Robert W. Ohio State University Research Foundation, Columbus.

A comparative study in literature on the dissemination and utilization of scientific knowledge. Lippitt, Ronald. Michigan University, Ann Arbor.

Research on the characteristics of selected school systems as they relate to the needs for appraisal, acceptance, and use of innovations. Halbower, Charles. Little (Arthur D.) Inc., Boston, Massachusetts.

A historical case study of the effects of educational reform on an underdeveloped area--Scotland in the Eighteenth Century. Bullough, Vern L. San Franando Valley State College, Northridge, California.

Organizational climate and adoption of educational innovations. Ballam, Oral L. Utah State University, Logan.

Analysis of the effectiveness of selected promising educational practices in a consortium of 36 public schools. Friedman, Burton D. Charles F. Kettering Foundation, Dayton, Ohio.

Personal and situational variables which inhibit or stimulate the adoption of agricultural occupations curricula as an innovation in vocational agriculture by institute participants. Hull, William L. Oklahoma State University, Stillwater, Agriculture--Applied Science

Information transfer and Dissemination Techniques

A feasibility study of the potential of network television as a distribution device for educational research information. Komoski, Ken. Columbia University, Teachers College, Institute of Educational Technology, New York.

Development of a system for educational product information exchange. Komoski, P. K. Institute for Educational Development, New York, New York.

Feasibility study to determine need and function of an ERIC Document Center for State education department publications. Kurland, Norman. New York State Education Department, Albany, New York.

Great Cities Research Council educational communications project. Thornbald, Carl E. Research Council of Great Cities Program for School Improvement.

A demonstration model of a means to disseminate advancements in instructional uses of educational media. Konick, Marcus and others. Pennsylvania State Department of Public Instruction, Harrisburg.

Research Methodology and Training

A conference to stimulate research and development on cirricular and instructional innovations in large colleges and universities. Dietrich, John E. Michigan State University, East Langing

Educational Innovation--research and evaluation techniques. Baker, Robert L. Southwest Regional Educational Laboratory, Inglewood, California.

Orientation of educators and behavioral scientists to information systems. Altman, James W. American Institutes for Research in Behavioral Sciences. Pittsburgh, Pa.

Conference and curricular and instructional innovations in State colleges and universities. Hawkins, Earle T. Towson State College, Baltimore, Maryland.

Research development seminar in cooperative education--the changing European secondary schools. Read, Gerald H. Kent State University, Ohio.

Internships for leaders in demonstration and dissemination. Henderson, Robert A. Illinois University, Urbana.

Workshop conferences to foster innovation in higher education. Baskin, Samuel. Antioch College, Yellow Springs, Ohio.

## APPENDIX C
## ERIC Products and How to Get Them

ERIC products are available from 4 sources: (1) the Government Printing Office; (2) Central ERIC; (3) the ERIC Document Reproduction Service; (4) each of the ERIC clearinghouses.

### Government Printing Office

Products based on the functioning of the entire ERIC system are distributed through the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Documents now available are:

. Research in Education. Included in each monthly issue are resumes for all reports received from the 18 ERIC clearinghouses and resumes for projects recently funded through the Bureau of Research, USOE. Report and project resumes are indexed by author, institutions, and subject matter. The February 1968 issue of Research in Education contained about 550 reports monthly: the June, 1968 issue will contain about 900 reports. Research in Education costs $11.00 a year; $13.75 outside the United States; or $1.00 for a single issue.

. Office of Education Reports, 1956-1965. This publication comes in two volumes. One volume contains resumes for 1214 research reports received by the Bureau of Research, USOE over the 10-year period from 1956 to 1965. The other volume contains author, institution and subject-matter indexes. The "Resume" volume (OE-12029) costs $1.75. The "Index" volume (OE-12028) costs $2.00. Research in Education begins with reports received in the Bureau of Research in 1966. Together the Office of Education Reports, 1956-1965 and Research in Education provide a complete record of all research reports received in the U.S. Office of Education.

. Pacesetters in Education, Fiscal Year 1966. The volume (OE-20103) includes resumes and author, institution, and subject-matter indexes for the 1075 projects funded under Title III, ESEA, in Fiscal Year, 1966: $2.50.

. Catalog of Selected Documents on the Disadvantaged: A Number and Author Index (OE-37001); cost, 65 cents; Subject Index; (OE-37002); cost, $3.00. These two index volumes were based on the original ERIC collection of 1746 documents related to the education of the disadvantaged.[1/]

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1 The Collection on the Disadvantaged also has been made available by Prentice-Hall, Inc. Prentice-Hall combined the separate Author and Subject indexes prepared through ERIC, added printed abstracts for each document (ERIC's abstracts for this collection were on microfiche) and produced the Educator's Complete ERIC Handbook: Phase One. Englewood Cliffs, New Jersey: Prentice-Hall, 1967.

Products soon to be available from the Government Printing Office are:

. The Thesaurus of ERIC Descriptors (first edition), December 1967 (OE-12031) contains about 3,000 descriptors, and runs 189 pages. Cost has not been determined, an estimated price is $3.00. The Thesaurus should be available in March, 1968.

. Cumulative Index to Research in Education, 1966 and 1967: expected to be available by March, 1968. This index will combine the 14 separate author, institution, and subject-matter indexes for the November and December, 1966 and the 12 1967 issues of Research in Education and will include a legislative authority index for reports received from projects funded by the USOE. The 700 pages will provide access to 2,990 ERIC reports: probable cost, $5.00.

. Pacesetters in Education: Fiscal Year, 1967: expected in March, 1968. The format of this volume will be like its 1966 predecessor, but will contain information for the 904 projects funded in fiscal year 1967 under Title III, ESEA. The volume will contain about 250 pages and is expected to cost $2.50.

. U.S. Government Manpower Research Reports, Fiscal Years 1966 and 1967: suggestive title only; expected in June, 1968. This volume will contain the usual ERIC-type resumes and author, institution, and subject-matter indexes for approximately 350 research reports pertaining to manpower received by programs in the Department of Health Education and Welfare, Department of Labor, and Office of Economic Opportunity, from July, 1966 through June, 1967.

Central ERIC

In addition to directing preparation of products sold through the Government Printing Office, Central ERIC, in the Division of Information Technology and Dissemination, Bureau of Research, USOE, also makes a limited number of publications available at no cost. These are:

. Pamphlets or brochures describing ERIC such as "ERIC and the Need to Know," a reprint from the NEA Journal, 56 (February, 1967), 65-73; "The Scope of ERIC"--a brochure; and subscription forms for Research in Education. A new brochure on ERIC, "ERIC; What It Is and How to Use It," should be available by May, 1968.

. Number and Subject Index of Selected Documents on Higher Education prepared by the ERIC Clearinghouse on Educational Administration, University of Oregon, 81 pp. This volume contains a subject and report number index for the 845 reports selected from those included or cited in The Reporter, a magazine formerly published by the U.S. Office of Education. This index is available through the ERIC Document Reproduction Service as ED 012110; 50 cents on microfiche, $3.24 on hardcopy. See Research in Education, 12 (December, 1967), p. 49 for the resume for ED 012110.

. Rules for Thesaurus Preparation. ERIC, October, 1966. pp. 9.

ERIC Document Reproduction Service (EDRS)

EDRS is operated under contract with the US Office of Education to produce and sell microfiche or hard copy reproductions of ERIC documents. In December, 1967, when the National Cash Register Company became the EDRS operator the address for EDRS was changed to:

ERIC Document Reproduction Service
The National Cash Register Company
Box 20026
Rockville, Maryland 20852

With the change in EDRS operators, prices for microfiche also changed.[2/] Costs for purchase of complete collections of ERIC documents were reduced to 8.4 cents. The price of individual microfiche, however, increased to 25 cents. Hard copy prices remained the same, at 4 cents per page. Beginning with the January issue of Research in Education, the new prices will appear with the resumes for documents. Prices for individual documents already announced in Research in Education or in indexes to spcial collections must be recomputed using 25 cents per fiche in place of 9 cents for individual documents. Thus, where 9 cents appeared, substitute 25 cents; for 18 cents, use 50 cents; for 27 cents, use 75 cents; and so on. Costs for collection collections of documents (based on 8.4 cents per fiche) are:

. Research in Education: a standing order to buy all documents cited in Research in Education can be established at any time. Monthly costs will begin at about $65.00 for about 500 reports (based on 1.5 microfiche per report) and go up, depending upon the number of reports processed per month by the clearinghouses. The expected high figure for any monthly total in the coming year is 900 reports.

. Office of Education Research Reports, 1956-1965: $280 for the 1214 reports.

. Pacesetters in Education, Fiscal Year 1966: $100 for the 1075 project descriptions.

. Selected Documents on the Disadvantaged: $230 for the 1746 reports.

. Selected Documents on Higher Education: $115 for the 845 reports.

2 At the request of the Division of Information Technology and Dissemination, Bureau of Research, USOE, The National Microfilm Association has published an easy to use guide to microfiche readers and reader-printers. See Vernon D. Tate, and D.R. Wolf, "A Study of Microfiche Readers and Reader-Printers Currently Manufactured in the United States," National Microfilm Journal. 1(Fall, 1967), 1-17. This article is available as reprint for separate distribution for 50 cents for a single copy or at bulk rates for 100 or more copies. Requests should be sent to: The Executive Secretary, National Microfilm Association, 250 Prince George Street, P.O. Box 386, Annapolis, Maryland 21404.

ERIC Clearinghouses

Appendix D provides a listing of the 18 ERIC clearinghouses that were operating as of January, 1968. Each clearinghouse is producing a variety of products, among these are newsletters, bibliographies, and interpretative and analysis reports. Some products are published as separate documents; others are included as regular sections in professional journals.

The 14 oldest clearinghouses distribute newsletters. Clearinghouses not distributing a newsletter as of January, 1968 are the Clearinghouses on Educational Facilities, Library and Information Sciences, Educational Media and Technology, and Teaching of English. Illustrative titles of newsletters are: "CAPS Capsule," Counseling and Personnel Services; "r & d Perspectives," Educational Administration; "Junior College Research Review," Junior Colleges; "The Retriever," Rural Education and Small Schools; "Centergram," Vocational and Technical Education; and ERIC Excerpt", Exceptional Children.

Over 100 major bibliographies have been prepared by the ERIC clearinghouses. As bibliographies become available, they are cited in Research in Education and made available through the ERIC Document Reproduction Service (EDRS). There may be a lag of 3 to 4 months between the time a clearinghouse distributes a limited number of hard copies and when they are available through EDRS. Samples of bibliographies are:

A Basic Reference Shelf on Instructional Media Research (an annotated bibliography) Educational Media and Technology, November 1967, 10 pp.

Published Research Literature in Reading, 1950-1963 Reading, November 1967, 387 pp.

A Bibliography on Nongraded Elementary Schools (with selected annotations) Early Childhood Education, February 1967, 19 pp.

Higher Adult Education #1: Current Information Sources (the first in a series of ongoing annotated bibliography) Adult Education, October 1967, 20 pp.

1966 Selected Bibliography in Linguistics and the Uncommonly Taught Languages, Applied Linguistics, May 1967, 59 pp., ED010693.

The Education of Teachers of the Disadvantaged A Selected Bibliography, Disadvantaged, September 1967, 10 pp.

All but three Clearinghouses have produced one or more of the newly 50 research interpretation and analysis reports now available or at press. This figure does not include short journal articles or speeches on ERIC and its services prepared by staffs of clearinghouses.

Examples of titles of these reports are:

Job and Career Development for the Poor-The Human Services. Disadvantaged, September 1966, 35 pp.

Salvage, Redirection, or Custody: Remedial Education in the Community Junior College, Junior Colleges, February 1968, 75 pp.

A Basic Reference Shelf on Learning Theory, Educational Media and Technology, September 1967, 17 pp.

Compensatory Education in the Equalization of Educational Opportunity. Disadvantaged, November 1967, 51 pp.

A Summary of Investigations Relating to the English Language Arts--Elementary and Secondary, 1966, Teaching of English, January 1968, 56 pp.

Effective Utilization of Advances in Educational Technology in Rural School Systems, Rural Education and Small Schools, February, 1968.

Over 50 additonal review and analysis papers and reports are under development at the ERIC clearinghouses. These will become available in late summer at the earliest.

# ERIC CLEARINGHOUSES AND DIRECTORS

ERIC Clearinghouse for Science
Dr. Richardson
Columbus, Ohio 43212

ERIC Clearinghouse on Early Childhood Education
Dr. Brian W. Carss
Urbana, Illinois 61801

ERIC Clearinghouse on School Personnel
Dr. West
New York, New York 20036

ERIC Clearinghouse for Disadvantaged
Dr. Gordon
New York, New York 10003

ERIC Clearinghouse for Exceptional Children
Dr. June Jordan
Washington, D.C. 20036

ERIC Clearinghouse on Vocational and Technical Education
Dr. Robert Taylor
Columbus, Ohio 43212

ERIC Clearinghouse for Library and Adult & Continued Education
Dr. DeCrow
Syracuse, New York 13110

ERIC Clearinghouse on Rural Education
Dr. Alfred Potts
Las Cruces, New Mexico

ERIC Clearinghouse for Linguistics
Dr. Hood Roberts
Washington, D.C. 20036

ERIC Clearinghouse for Reading
Dr. Ed Summers
Bloomington, Indiana 47401

ERIC Clearinghouse for Junior Colleges
Dr. Cohen
Los Angeles, California

ERIC Clearinghouse for Foreign Languages
Dr. Mildenberger
New York, New York 10003

ERIC Clearinghouse for Educational Administration
Dr. Terry Eidell
Eugene, Oregon 94703

ERIC Clearinghouse for Guidance
Dr. Walz
Ann Arbor, Michigan 48104

ERIC Clearinghouse for Teaching of English
Dr. O'Donnell
Champaign, Illinois 61820

ERIC Clearinghouse for Library and Information Sciences
Dr. Wesley Simonton
Minneapolis, Minnesota 55455

ERIC Clearinghouse for Educational Media and Technology
Dr. Wilbur Schramm
Stanford, California 94305

ERIC Clearinghouse for Educational Facilities
Dr. Howard Wakefield
Madison, Wisconsin 53706

# APPENDIX E

## Outline Used in Workshops on Information Service Centers Conducted by the Division of Information Technology and Dissemination, (DITD) Bureau of Research, U.S. Office of Education

The following course outline was used in the two-day training sessions conducted by DITD staff. One session was for the Regional Research Coordinators of the Bureau of Research; the other was for about 20 staff members of local information centers supported under Title III, ESEA.

Introduction

- Information needs in education
- Educational information resources
- Relationships among existing information resources

Using ERIC Tools for Conducting Searches

- Consultation with the client for formulation and refinement of of information needs.
- The Thesaurus of ERIC Descriptors
  - Purpose and organization of the Thesaurus
  - Using the Thesaurus
- Search techniques with ERIC abstracts and indexes
  - Single term searches
  - Coordinate search techniques
- Uses and applications of the results of searches (e.g., program planning and evaluation, management, research planning)

Functions of Educational Information Centers

Organizing and Operating Educational Information Centers

- Requirements for space, equipment, materials, and staff
- Development and use of forms and procedures

Referral Sources and Techniques for Educational Information Centers

- Reasons for referral
- Referral points--capabilities and services
- When and how to refer

Staff and Client Training

- Types of staff capabilities required, recruitment criteria
- Materials and techniques for training

The Information Center as a Listening Post

- Means of systematically coordinating information services
- Needs for intercommunication among information sources

Evaluation of services

- User studies
- Cost effectiveness studies
- Operations analysis