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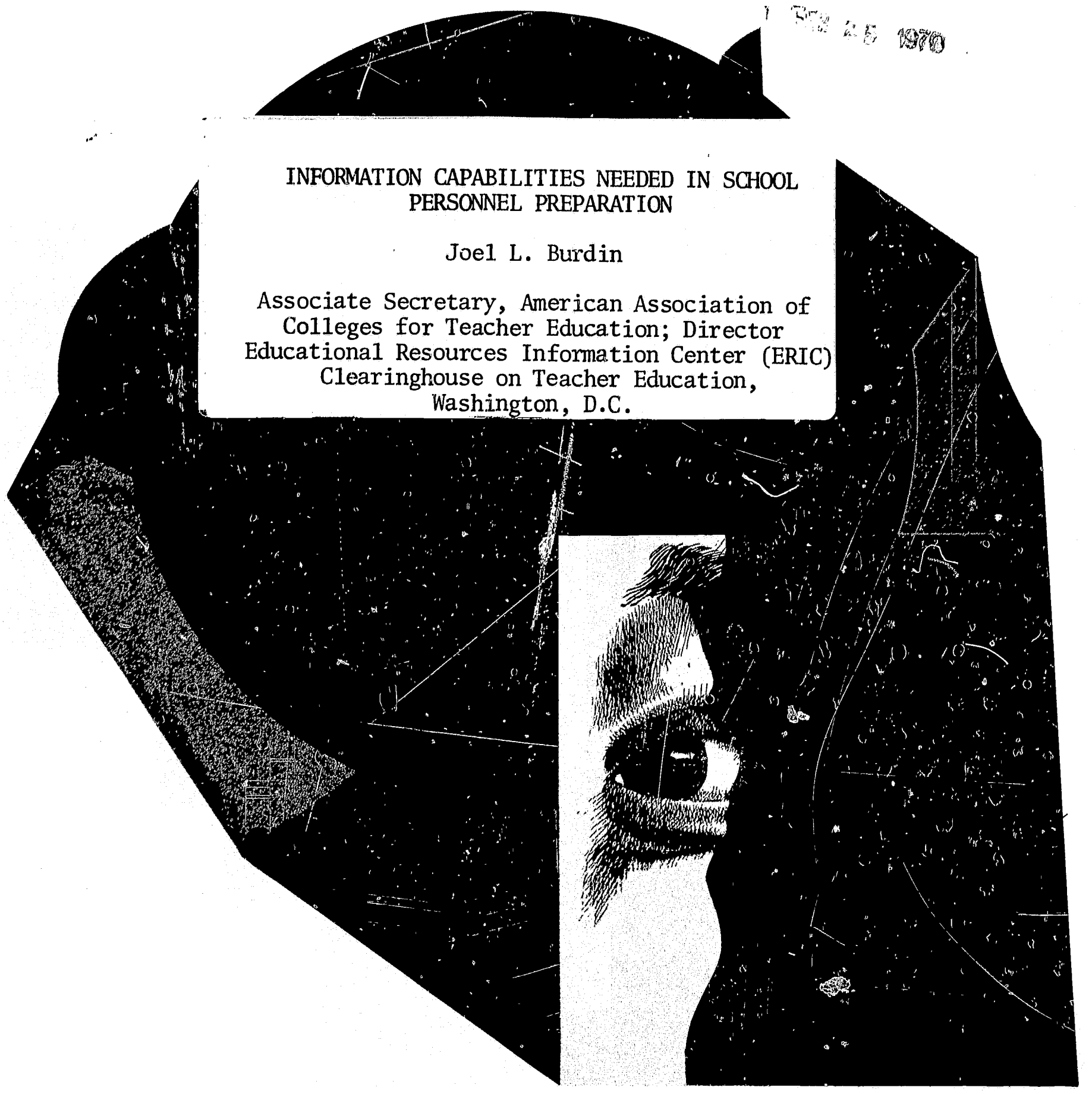
ABSTRACT

THE UNDERLYING ASSUMPTION OF THIS PAPER IS THAT THE CONSTANT FLOW OF INFORMATION INTO ALL LEVELS OF EDUCATION IS A KEY TO EFFORTS TO IMPROVE EDUCATION, IN GENERAL, AND SCHOOL PERSONNEL PREPARATION PROGRAMS, IN PARTICULAR. ITS PURPOSE IS TO DELINEATE SOME OF THE ISSUES AND ALTERNATIVES IN MEETING IDEA AND INFORMATION NEEDS REQUIRED FOR EFFECTIVE PERSONNEL PREPARATION PROGRAMS, AND TO EXAMINE THEIR PARTICULAR RELEVANCE TO COLLEGIATE INSTITUTIONS. AFTER SUMMARIZING THE RATIONALE FOR INFORMATION SYSTEMS, IN GENERAL, THE AUTHOR DEVELOPS THE CONCEPT OF THE COLLEGIATE INFORMATION SYSTEM (INCLUDING ITS VITAL OPERATIONAL BASE--THE INFORMATION SYSTEM CENTER) AND SUMMARIZES A SET OF SPECIFICATIONS AND RECOMMENDATIONS FOR ITS EFFECTIVE OPERATION AND UTILIZATION. PARTICULAR EMPHASIS IS PLACED ON THE RELATIONSHIP BETWEEN THE INFORMATION SYSTEM CENTER AND (1) TRAINERS OF SCHOOL PERSONNEL, AND (2) OTHER INFORMATION SYSTEMS (ESPECIALLY THOSE OPERANT AT THE LOCAL SCHOOL DISTRICT LEVEL, SINCE THEY ARE LIKELY TO BE MOST DIRECTLY INVOLVED IN COLLEGIATE-INITIATED PREPARATION PROGRAMS, AS WELL AS IN THE CONTINUING EDUCATION OF INSERVICE PERSONNEL). ALTHOUGH THE 18 RECOMMENDATIONS OF THIS PAPER MAY BE IMPLEMENTED PERHAPS MORE IMMEDIATELY THAN THOSE OF THE INFORMATION COMPONENT OF THE MICHIGAN STATE UNIVERSITY ELEMENTARY TEACHER EDUCATION MODEL, THE AUTHOR RECOMMENDS THAT THE LATTER BE CONSIDERED CAREFULLY IN OVERALL UNIVERSITY PLANNING OF INFORMATION SYSTEMS. INCLUDED WITH THE DOCUMENT ARE LISTINGS OF VARIOUS INFORMATION-RELATED SERVICES AND A MANUAL DESCRIBING THE OPERATION OF THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC). (AUTHOR/JES)

Feasibility Study

BEHAVIORAL SCIENCE TEACHER EDUCATION PROGRAM

Michigan State University



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Introduction

Several problems exist when information services are not adequate or used effectively. Too much time is spent in efforts to identify and secure ideas and information, often inappropriate or unsatisfactory, by trainers of school personnel and by preservice and in-service personnel themselves. This inefficiency curtails time which could be better spent in synthesizing, interpreting, and implementing activities based on good information systems and services. Further, too much time elapses between the creation of exploding new inventions and testing, improving, and adapting them in appropriate places. Also, much needless repetition, in contrast to soundly conceived replication, occurs when there is too little communication of research and practice throughout the education community. Then, too, decisions are made without benefit of relevant, timely, researched and tested, feasible, and sound perspectives and data.

This paper briefly delineates some of the issues and alternatives in meeting idea and information needs required for effective personnel preparation programs. Primarily it is focused on collegiate institutions; it also treats information relative to other agencies, institutions, organizations, and enterprises involved in school personnel preparation programs.

The basic assumptions undergirding this paper are:

1. School personnel trainers must demonstrate the necessity for and utility of a sound information system as a means of

vitalizing learning for themselves and others.

2. Preservice school personnel must learn to master the use of effective information systems.

3. In-service personnel who have come to recognize the indispensability of comprehensive information systems will continue to use them for continuous regeneration of philosophy, theory, knowledge, and technique.

4. Those using outside data will be more likely to seek innovative improvements than are their colleagues who are dependent on in-staff sources of ideas and information.

5. A collegiate staff has a major role in developing comprehensive information capabilities on campus and in other places to promote effective preservice and in-service preparation programs and service to educational consumers.

School personnel and their trainers are differentiated from laymen, including students, by specialized knowledge, competencies and attitudes. Communications are a basic process in which these professional specialties are developed at valid proficiency levels. The process requires continuous input and regeneration. Without updating, the specializations quickly become obsolete and irrelevant in a fast-changing world.

Access to and utilization of an effective information system is important at the preservice level, where utilization must become habitual and meaningful, and at the in-service level where lifelong growth must occur. Teacher trainers on campus and wherever they work with school personnel must through work and action contribute to the development of information systems, promote their effectiveness, and encourage sound utilization. The constant flow of information into all levels of education is a key to efforts to improve education in general and school personnel programs in particular.

A Comprehensive, Active Information System for Preparation Programs

Rather than being dispensers of knowledge in the lecture-recite-test tradition, collegiate school personnel trainers are communicators. This means two-way interaction between those who have some worthwhile ideas to communicate

and the receivers-utilizers. The latter group must be actively involved in the process and be encouraged to express felt needs and communications strategies. Changed behavior, broadly conceived, is the ultimate proof of success in educational communication.

The same generalization holds also for school system personnel concerned with preservice and in-service preparation programs and instructional improvement. School systems must be a part of comprehensive information systems if they are to attain their potentialities. Such involvement is necessary in staff development as well as for instruction for primary through graduate levels.

The interdependence of communications and information systems is a basic consideration. The former makes the latter significant. The latter makes the former operational in meeting needs. Both must be comprehensive in conception and utility implementation.

Communication is a process of interaction. Obviously, there are many people involved in dynamic communication which makes ideas and information personally meaningful. Information and ideas available to all interacting parties can provide a framework for communication and action as well as create readiness for it.

Dispensing ideas and information to passive students long was a commonly held view of teaching. The student task was to listen, memorize, recite, and take tests at prescribed performance levels. This kind of teaching-learning process placed a premium on stabilized and legitimized knowledge. It was possible to contain knowledge in a few books, the mastery of which indicated both knowledge and intellectual capability transferable to other learning situations. Clearly, it is not possible to hold this viewpoint in today's world: a) Americans of all ages reject passive acceptance of prescribed knowledge. b) Knowledge and ideas become obsolete. c) The times require interaction of people, information, and ideas; this process has lasting value in a changing world.

In contrast to static idea-information dispensing means and methods, contemporary information systems must:

1. Be capable of identifying, securing, evaluating, abstracting and indexing, storing and retrieving, interpreting, and applying ideas and information for particular persons in specific situations, for targeted purposes

2. Provide both form and substance which encourage dynamic interaction between men relative to their intellectual tools. (The teacher's unique tools are ideas and information; the use of an information system is a basic tool. The learner's basic task is learning how to use ideas and information; an information system is his "bank," from which he should draw freely and frequently)

3. Permit exchange between different kinds of systems of information storage and retrieval, for example, computerized and non-computerized libraries and information analysis centers

4. Provide for expansion or adaption to meet changing needs and conditions

5. Permit continual updating of ideas and information in the data bank and communication of changes to users

6. Facilitate awareness of the current content in data bank

7. Enlarge the user's capabilities by providing summaries, syntheses, and interpretations derived from the data bank

8. Contribute to the body of knowledge by commissioning papers, bibliographies, and directories to fill existing gaps and complement existing ideas and information

9. Encourage practitioners, researchers, and other users to stimulate improvements in the system itself and in the quality and quantity of the data bank

Preparation programs require cooperation of many individuals in various kinds of information gathering and disseminating roles and places. The concept of a "one-stop information center" is useful here. Developed by Burchinal,[1] the concept goes beyond passive collection of data and documents. Burchinal advocates information centers with several distinct capabilities and characteristics:

1. Familiarity with organized sources of knowledge pertinent to the field

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[1]Lee G. Burchinal, "ERIC and the Dissemination of Research Findings," Theory Into Practice, April 1967, p. 83; "Needed: One-Stop Information Centers," Educational Researcher, Supplement, 1967, pp.8-9.

2. Knowledge of information which can be secured from varied sources as well as specific data concerning time required to secure information, its format, and its cost

3. Assistance to user in translating his concepts and questions in such a way that he can interact with various information systems

4. Familiarity with user needs and communications links leading to transmission of those needs to information systems

5. Linkage with different kinds of information systems to capitalize on their varied specialities and assets

6. Linkages of information processors, researchers, trainers, and change agents -- a "community of interest" leading to an articulation of interlocking concerns

7. Development of training programs and materials to prepare individuals for change-agent roles

Burchinal discusses one-stop information centers from a perspective broader than school personnel preparation. However, his concepts as adapted above are sound in the limited perspective broader than school personnel preparation. However, his concepts as adapted above are sound in the limited perspective of this paper. A collegiate Information System Center (ISC), linked functionally with other information systems, can do much to provide trainers with idea and information tools needed to bring about imperative changes.[2]

A government panel defines Information Analysis Centers in a manner which emphasizes how broadly information services are viewed in this paper:

> An information analysis center is a formally structured organizational unit specifically (but not necessarily exclusively) established for the purpose of acquiring, selecting, storing, retrieving, evaluating, analyzing, and synthesizing a body of information and/or data in a clearly defined specialized field or pertaining to a specified mission with the intent

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[2]This paper proposes the ISC title to emphasize the function of the Center in relation to all information centers which now exist and which should be supplemented by special center functions.

> of compiling, digesting, repackaging, or otherwise organizing and presenting pertinent information and/or data in a form most authoritative, timely, and useful to a society of peers and management.[3]

The ultimate goal of an effective information center for school personnel trainers should be to make available to each individual that information and those ideas in a form and at a time needed to help him to prepare preservice and in-service school personnel. An information center catering primarily to collegiate personnel would be different from one serving local district personnel trainers. A center serving state education department personnel would likewise be unique. Wherever located, an information center should meet special needs of its users, through its own activities and through functional linkages with other information centers and services. Each should support and supplement the others. Collegiate information centers, at the very center of new knowledge generation and involved in national generation networks, have special roles in stimulating other centers and assisting them.

Information system centers for school personnel trainers have much in common with information centers in general. Le Baron identifies four specific kinds of data needed to implement comprehensive efforts to develop sound preparation programs. Like the Michigan State University model for preparing elementary school teachers (Behavioral Science Elementary Teacher Education Program) as well as many other proposals, the LeBaron preparation model is systems oriented.[4] The steps, each requiring sound data, include: a) description of present situation relative to the society and school staff roles; b) required changes and potential problems in implementation; c) definition of problem solving processes and needed resources; d) development of evaluation and feedback.

LeBaron advocates four specific kinds of information in effective program development.[5]

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[3]Federal Council for Science and Technology, Committee on Scientific and Technical Information, Directory of Federally Supported Information Analysis Centers (Washington, D.C.: The Council, April 1968). 196 p. Herbert B. Landua, Document Dissemination (Philadelphia: Auerback Corp., 1969) p.9.

[4]Walt LeBaron, A Systems Approach to the Organization of Teacher Training Experiences (Santa Monica, Calif: Systems Development Corporation, February, 1969) p.8.

[5]LeBaron, pp. 19-20.

1. Input information Information on the prospective personnel's potentialities to succeed in terms of the programs requirements, intellectually, socially, emotionally, and personally. Analysis of limitations and prescriptions for improvement. Evaluation of all experiences in relation to preparations for improvement. Evaluation of all experiences in relation to preparation program

2. Background information Continuous analysis of the school setting, where school personnel will function, to provide preparation program input

3. Process information Information on progress being made by each individual and by groups of individuals, relative to program objectives and adjustments made to improve success

4. Output information Data on performance of each "graduate" of aspects of programs which contributed to success (This could provide important input for future efforts toward improvement of programs)

This kind of information should be readily available in the collegiate training staff's immediate offices or in its Information System Center (described in more detail later). It is obvious that extensive cooperation of state education agencies and local school districts is necessary if much useful information is to be available to supplement collegiate data gathering efforts.

Collegiate Information System For School Personnel Preparation

Each collegiate teacher trainer must be a scholar, researcher, and practitioner. His needs for effective information systems are therefore extensive and urgent.

1. Since his specialization is likely to be in flux at all times, he needs ideas and information continuously. Likewise, his needs are affected by new implications and applications of his specialization.

2. Since he is a producer of knowledge, he needs to know what others have done and are doing. This can stimulate ideas and help him to avoid unnecessary repetition in his research, experimentation, and writing.

3. Since he is a practitioner, he needs fresh input to convert into lecture and discussion materials, reading lists, instructional techniques, and various kinds of student research projects, and learning assessment activities. As a practitioner, he is active in analyzing, synthesizing, and interpreting ideas and information into thinking, learning, and instructional tools for preservice and in-service school personnel.

4. Since he performs these and other complex roles, he is a user of the many disciplines from which education draws. He acquires not only the knowledge but also the processes and skills of those disciplines. He requires processed ideas and information to help him interpret and apply the various disciplines to his tasks.

The collegiate trainer could maintain his own information system and conduct his own searches of that system. However, if he did this adequately, his other work would suffer. An effective information system provides technical services, thus freeing the trainer for professional roles. Such a system eliminates tedious and non-productive information searches and provides a comprehensive bank from which to draw. Standardized search tools and techniques increase the probability that only the most relevant documents and aids will be identified.

Components of an effective collegiate information system for school personnel preparation are common. A specific place is needed to bring together information specialists. Such persons could integrate existing components into the system and supplement them. Here are some illustrations of applications of this concept. The Center staff should be able to use:

1. Library collections, both central and departmental

Card catalog collection on books selected by the education faculty

Research in Education, to serve as a search tool for Educational Resources Information Center (ERIC) microfiche collection in main university library

Current Index to Journals in Education, to serve as a search tool for ERIC-processed journals and yearbooks, as well as other guides such as Education Index

Standard reference works commonly used by educators, such as Dissertation Abstracts, Psychological Abstracts, and Sociological Abstracts.

2. Computer center

On-line access to the computer, for example, tapes containing the total ERIC collection or access to other information centers, enabling continued query until exact information is found

Software packages developed in the Information System Center or elsewhere to provide query capabilities

Coordinate indexing development and maintenance for all resources stored in any component of the university system, to permit highly targeted search capabilities

3. Audiovisual services

Catalogs of audio-visual aids in local collections and those located elsewhere

Coordinate indexing system for the aids

4. Education staff newsletter

Bibliographic citations of new materials, where available (on campus or elsewhere), index terms from ERIC Thesaurus, and where feasible abstracts (to provide useful information, to stimulate use of available materials, and to provide clues to needed university acquisitions)

The Information System Center should provide several services on its own. A few examples will suffice. Useful for writers and researchers, it should identify useful index terms, use various search tools to identify documents and materials, and provide useful bibliographic and descriptive data. For teaching professors, it should conduct searches targeted on developing reading lists and identifying related materials for lectures and discussions. For clinical professors, it should provide comparable services in elementary-secondary teaching and learning.

The Information System Center should serve committees and councils such as those responsible for curriculum revision and research coordination. Such service could include: a) provision of information requested, b) suggestions for committee study topics, c) selected annotated bibliographies. Such service would free time of personnel trainers to concentrate on the utilization of knowledge.

Training student and staff to be information consumers should be a vital Center role. Training approaches should include programmed materials, mediated practice

materials, and staff assistance. Consultative assistance should be provided persons such as those teaching research methods, library staffs and school district in-service education directors (that is, persons who teach others to use information systems).

Facilitating computer directed instruction and computer assisted instruction should be another vital Center role. The Center staff should consult with the education faculty in determining what data should be secured and stored in the computer center. The data would include the usual personal data, test results, acceptable performance levels for instructional modules, and record of progress. The Center should assist the instruction staff in developing its computer directed instruction as well as its computer assisted instruction. The latter could occur outside the Center itself since it is not feasible to have separate equipment of this kind in the education facility.

The Center staff should also provide assistance in evaluating individual preservice and in-service school personnel and the total preparation program. Built-in assessment capabilities are desirable for several reasons, including program improvement.

Personnel needed in a major university include: a) regular Center staff, b) other university staff with some Center duties, c) consultants. The regular Center staff should include a director and two assistant directors. One assistant should be responsible for document acquisitions and evaluation, information synthesis and interpretation, and user relations. The second assistant should serve as Center manager and as such direct technical operations. Other professional personnel should include information analysts, communications specialists, instructional materials development specialists, programmers, and processing specialists. Secretarial and clerical supporting staff should be available on a ratio of the equivalency of two persons for each professional staff.

Non-Center personnel should include members of curriculum and research committees--who should be constituted as a policy-level advisory committee. Other faculty personnel should be utilized on the basis of unique contributions. Outside consultants should be used in specialized roles and in general assessment activities. Preservice and in-service personnel should be included in advisory groups.

Facilities and equipment for an information center are largely comparable to those in typical collegiate settings. Privacy is important to all the professional staff.

Much space is needed particularly in the processing of documents. Some study areas for users should be provided (but not approaching the general library's capacities). In addition to general office equipment, the Center should have on-line computer terminals and some key-punch equipment, microfiche reader-printers, microfiche readers, photocopying equipment (for in-house and user service), and limited projection equipment (for instructional use and for analyzing mediate materials).

The basic requirements for establishing a collegiate Information System Center are personnel, space, and commonly available equipment and materials. None of these resources is inexpensive. However, the inefficient use of existing personnel and resources is poor economy; it is unwise to have preparation programs carried out by personnel and programs developed without sound information systems.

Relationships to Other Information Systems

The collegiate Information System Center also should serve and receive input from off-campus information centers and services. Increasingly, much of school personnel preparation is conducted in local districts early in the preservice program--for example, in preprofessional laboratory experiences--and continues for a lifetime--in formal and informal in-service programs. Local school districts need assistance in operating information systems capable of promoting effective preservice and in-service programs. Information systems operating by various other agencies, organizations, and enterprises deserve considerable attention, but assisting the local school district's information will receive special attention in this paper: a) Input from other information systems is likely to be made into the collegiate system and should be shared with school districts. b) The local school district is more likely to be involved directly in collegiate-initiated preparation programs and is likely to require collegiate aid in maintaining an effective information system.

The interrelationships of the collegiate and local school district information centers should be placed in the context of promoting effective preparation programs.

1. The district provides many early laboratory experiences which can help preservice personnel to blend an understand-

ing of theory, knowledge, skills, and practices.

2. The district takes up--for a lifetime--where the collegiate program to a large extent terminates.

3. The quality and quantity of district preservice and in-service personnel preparation programs are a consequence in large measure of the kinds of ideas and information communicated by collegiate personnel to district personnel.

4. District resources are spread too widely--primarily for instruction and services to elementary-secondary-adult levels--to permit the maintenance of extensive information services needed to promote change in the preservice and in-service personnel. Therefore, collegiate information specialists and collegiate staff personnel serviced by the collegiate Information System Center must help the district to develop a local center, train personnel to operate it, provide it with pertinent documents and data, and secure from it data for collegiate use. Without such involvement, the quality of district-directed personnel preparation is likely to be inadequate. Collegiate-directed objectives are likely to break down at the application level in the schools.

The impact of outside stimuli on school district change agents has been studied extensively. Haubrich reviews four principles established by Griffith; and three stress the efficacy of outside intervention--"the major impetus for change." Haubrich in closing his monograph stresses the necessity of giving priority to those preparation programs with built-in collegiate-school district collaboration relative to: a) field testing and research components b) re-education of leaders who control school districts, c) course work based on diagnoses of school difficulties.[6] Haubrich clearly proposed steps which require two-way communications. If outside forces are to have impact, information and idea must be relevent and valid, with data provided by both collegiate and school district information systems.

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[6]Vernon Haubrich, Design and Default in Teacher Education, (Washington, D.C.: American Association of Colleges for Teacher Education, March 1968) Reference to Daniel Griffiths, "Administrative Theory and Change in Organizations," in Innovation in Education, Edited by Matthew B. Miles (New York: Bureau of Publications, Teachers College, Columbia University, 1964.) pp. 425-36, pp. 24-25.

The importance of outside intervention to stimulate district change can be seen in data secured by the Far West Laboratory for Educational Research and Development.[7] The study found that information sources in local districts tend to be colleagues, and the communications tend to be informal. The collegiate-based "outsider" with sound ideas and information can make an impact if he can reach local change agents, who in turn can transmit data to their colleagues.

The Far West Laboratory also notes that print materials are not within the five most commonly used data gathering means. Conjectured reasons include: a) necessity for time and activity, b) difficulty in ascertaining credibility and reliability.[8] A reasonable conjecture is that information centers staffed with trusted individuals capable of relating data to local situations might be able to increase acceptance of outside input. Such centers could also help local district staffs in overcoming perceived difficulties in using outside data, for example, interpreting statistical data, understanding procedures for getting information, and resolving conflicting data from different data sources.[9]

Collegiate relationship with local district change agents and local information specialists should produce idea and information dissemination which permits varied responses by school personnel all of which should improve preservice and in-service preparation programs:

1. General updating of information on broad and specific fields of education in relation to societal and world conditions

2. Studies in considerable depth in order to participate in building or system level activities

3. Intensive re-tooling to eliminate weaknesses uncovered in faculty self-study or to work toward new school-wide objectives and strategies

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[7]M.H. Chorness, C. H. R. Henhouse, and R. C. Heald, Decision Processes and Information Needs in Education (Berkeley, Calif.: Far West Laboratory for Educational Research and Development, 1969,) p. 10.
[8]Ibid pp. 49-50.
[9]Ibid, p. 59.

4. Intensive re-tooling in preparation for major changes in classroom objectives, content, or strategies

5. Intensive study to prepare for an action research project

6. Intensive study to prepare for participation in controlled research conducted by specialists

The rationale and justification for collegiate involvement is that preparation programs are being conducted increasingly in the field. That being the case, collegiate staffs must effectively reach local district personnel with personally meaningful ideas and information which can contribute to behavioral changes. Such changes should be compatible with soundly conceived collegiate programs. The desirable state of affairs is at hand when preparation programs and the elementary-secondary programs are compatible with the needs of students and the larger society.

The university Information System Center should provide certain services to systems beyond the campus and collaborating school districts. As prime generators of ideas and information and major users as well, the university has a major stake in sound information systems. Presently there is inadequate coordination of efforts, needless duplication of activities, gaps in capabilities and services, and lack of compatibility in indexing, storing, and retrieving. The university Center should play an important role in organizing university efforts to stimulate improvements in information systems. Several systems need university input, stimulation, and services:

1. State education agency information system

Preparation of staffs

Copies of university produced documents

Evaluation of services

Stimulation of cooperating school district personnel to use services and contribute data to the state information center

2. Interstate information systems

General exchange of data and services

Exchange of ideas

3. U.S. Office of Education, National Center for Educational Statistics

Assistance to university in collecting and storing data in a form compatible with the national system

Occasional analyses and repackaging of ideas secured through the system

4. Educational Resources Information Center (ERIC)

Transmission of documents to appropriate clearinghouse--or if Bureau of Research funded, to the Bureau, which transmits documents to the system

Utilization of services and products

Assessment of services and products

Suggestions for needed monographs, bibliographies, and directories

Assistance in developing such materials

Training of university staff relative to ERIC

Inclusion of functional instruction in the use of the system in preservice and in-service programs (e.g. use of the instructional materials in ERIC prepared by the ERIC Clearinghouse on Teacher Education)

Other systems could be mentioned, but the basic point has been illustrated: the university has roles in many information systems. Just as it has generated knowledge and stimulated its use through book storage, the university should develop a comparable commitment to information systems.

Dissemination capabilities of information systems can be broadened through the use of the mass media. The university Information System Center should stimulate awareness of modern information service capabilities among newsmen and journal personnel. The Center should also provide them with assistance in tapping various information services. The mass media can do much to translate ideas and information into meaningful terms to laymen. The creation of public support for sound school personnel preparation, and education in general, should be a major Center objective.

Recommendations

Implementation of the following recommendations would move a university in the direction of having a dynamic, comprehensive information systems center. Such a center could do much to vitalize instruction and help carry out more effectively several existing and emerging roles and responsibilities.

1. The university should conduct a comprehensive study of its information capabilities and deficiences and initiate steps to establish a college of education administrative unit to coordinate staff utilization of existing, viable information services; to establish additional ones; and to conduct training activities for school personnel trainers where needed to promote effective school personnel preparation programs. A broadly-based advisory group should guide the operation of the center, which has been called an Information Systems Center in this monograph.

2. University teaching-learning processes should be undergirded by the inquiry process, making utilization of information systems, libraries, museums, and special collections a functional, indispensable process in learning. University teaching should be vitalized by the infusion of the best ideas and information, made possible by Center information services provided to the faculty.

3. University school personnel preparation programs should include a continuing use of research and experimentation data in all aspects of preparation; this kind of activity should help all preservice and in-service personnel to become proficient at prescribed levels in the utilization of all sources of information.

4. University preparation programs should include sufficient study of and experience with professional groups to stimulate preservice and in-service school personnel to become cosmopolitan in attitude toward and acceptance of varied information sources and desire to be involved in professional contacts beyond the local school district.

5. University preparation programs should include formal instruction in the use of information systems, libraries, and so forth. Learning how to learn is an objective of greatest importance and should become the basis for the kind of vital scholarship which should enable school personnel

to regenerate themselves personally and professionally all their lives.

6. The university should incorporate into school personnel preparation programs data on information materials and sources related to instructional modules and information systems utilization. Mastery of information proficiencies at prescribed levels should be an integral part of mastering total modules, such as the ones developed in the Michigan State University's Behavioral Science Elementary Teacher Education Program.

7. The university Information System Center should encourage the indexing of all staff-generated print and mediate materials. (Since the ERIC system has been developed specifically for education, the ERIC processes should be adapted for university use.)

8. The university Center should assume an active leadership role in identifying instructional materials for various kinds of institutional collections and in processing orders for such materials requested by university staff for their instructional and scholarly uses.

9. The university Center itself should collect and interpret data needed by program planners, researchers, and practitioners as well as synthesize and interpret data from other places.

10. The university Center should stimulate interdisciplinary studies of information systems relative to: a) types of ideas and information needed, b) means useful in meeting needs, c) information flow patterns, d) user characteristics, e) behaviors of generators and users of information.

11. University faculty members should collaborate on a parity basis with personnel in school districts and the state education agency to plan programs and activities. This should generate a two-way, face-to-face information exchange which can stimulate exemplary programs in all places where school personnel are prepared.

12. The university Center should encourage all faculty members to use their professional contacts throughout the nation and world to support information centers.

13. The university staff should use its influence to promote the development of a comprehensive network of information systems, each with functional interfacing.

14. The university Center should provide feedback to information systems concerning extent of their use, problems encountered in their use, and needed improvements.

15. The university staff should collaborate with information analysis centers in identifying needed state-of-the-art papers, bibliographies, and directories and in getting them developed. Such materials should be used extensively in all phases of preparation programs.

16. The university Center should provide copies of all documents generated through its projects and scholarly endeavors of its staff to appropriate ERIC clearinghouses and other information systems.

17. University personnel should use their influences in getting commercial and non-profit publishers to include ERIC index terms, identifiers (identifying terms not included in the ERIC Thesaurus), and abstracts as integral parts of all publications.

18. University personnel should use their influence to encourage commercial and non-profit publishers to grant release privileges to information systems to enable them to reproduce documents in "microfiche" and "hard copy" form. (These forms do not appear to be competitive with original documents, and release privileges would make documents available after original documents are out of print).

The university Center should provide technical assistance in implementing the information component contained in Michigan State University's Behavioral Science Elementary Teacher Education Program (Volume III, Section 10, pp. 1-64). This is a sound proposal for monitoring progress in instructional module mastery and for revising the modules. Implementation of the recommendations listed above is not dependent on immediate implementation of the information component of the MSU elementary teacher education model. That proposed component should be considered carefully in overall university planning of its information systems.

Conclusions

Practioners and researchers in the field of school personnel preparation need an effective information service designed and administered specifically for them: a) They should not use their professional services in information

searching; b) Information specialists can provide better services. In a fast-changing, complex world, only the best ideas and information are acceptable if preparation programs are to develop preservice and in-service school personnel who are competent in meeting individual and societal needs.

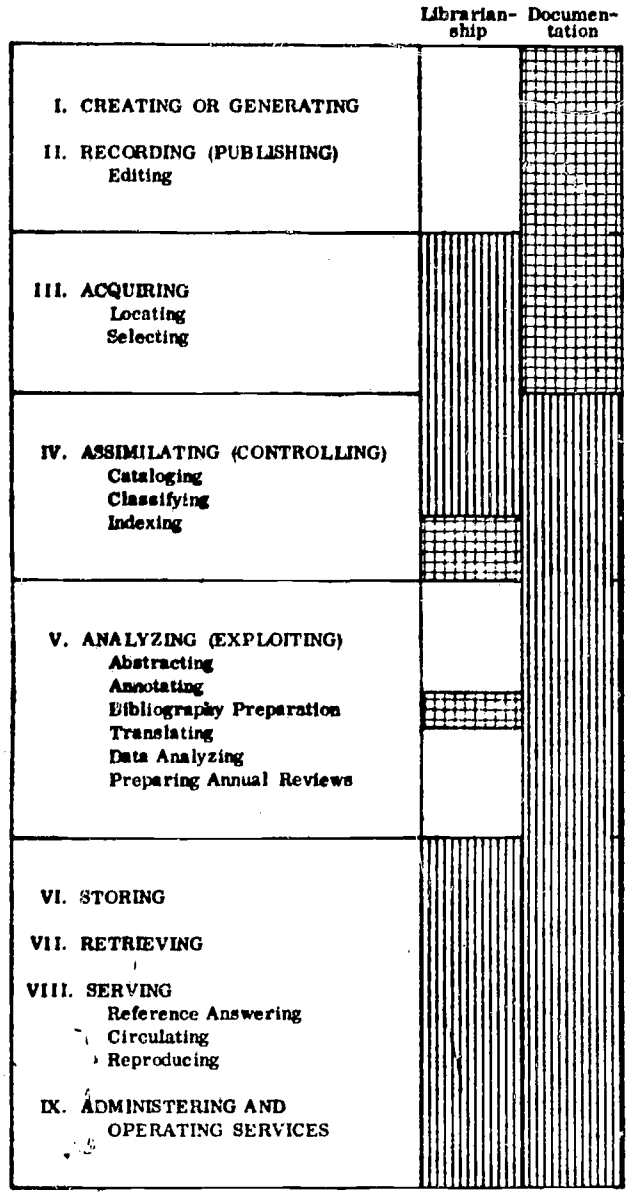
School personnel trainers should use information services regularly and promote similar usage by preservice and in-service personnel. Sound ideas and information should be prerequisites for all planning, implementation, and assessment activities wherever personnel preparation programs are carried on.

The needed technology and the processes for sound information services are available now and are being improved continuously. The university needs a major commitment to assess information needs relative to objectives, to study on-campus and other information capabilities, and to act to develop and improve them. While many information systems can serve general educational purposes, school personnel preparation is sufficiently important to require a special information services center to bring various information systems and capabilities to bear on preparation programs and to conduct several supplementary information activities.

Since preparation programs take place under several auspices, collegiate personnel have responsibilities for strengthening various kinds of information systems. There is an urgent need for more effective use of existing capabilities and for establishing new coalitions to create the kinds of services which can and must make a difference in preparation programs. This is an important key to improving education on all levels for all the people.

LIBRARIANSHIP AND DOCUMENTATION

A Functional Comparison



(from George Grimes, Information Services, Michigan Ohio Regional Educational Laboratory, July, 1969, p.6)

MICHIGAN-OHIO REGIONAL EDUCATIONAL LABORATORY
3750 Woodward Avenue Detroit, Michigan 48201

REFERRAL LIBRARY
SEARCH PROCEDURE

NAME OF USER

DATE OF INQUIRY

INQUIRY (BRIEF)

ASSOCIATED DESCRIPTIVE TERMS

INFORMATION AGENCIES

- ☐ Alexander G. Bell Association for the Deaf
- ☐ American Educational Research Association (NEA)
- ☐ American Society of African Culture Library
- ☐ Association for Supervision and Curriculum Development (NEA)
- ☐ Bureau of Public Affairs, U.S. Department of State
- ☐ Center for Research and Development for Cognitive Learning
- ☐ Center for Research and Development in Higher Education
- ☐ Center for Research and Development in Teaching
- ☐ Center for Research and Development on Educational Differences
- ☐ Center for Research in the Study of Social Organization of Schools
- ☐ Center for the Advanced Study of Educational Administration
- ☐ Center for the Study of Evaluation of Instructional Programs
- ☐ Center for the Study of Liberal Education for Adults
- ☐ Clearinghouse for Federal Scientific and Technical Information
- ☐ Clearinghouse for Sociological Literature
- ☐ Data Repository of the Survey Research Laboratory, Univ. of Illinois
- ☐ Defense Documentation Center
- ☐ Department of Audiovisual Instruction (NEA)
- ☐ Department of Classroom Teachers (NEA)
- ☐ Department of Elementary School Principals (NEA)
- ☐ Educational Facilities Laboratories (Facilities Information Service)
- ☐ Educational Products Information Exchange (EPIE)
- ☐ Educational Resources Information Center (ERIC)
- ☐ EDUCOM (Interuniversity Communications Council)
- ☐ Foundation Library Center
- ☐ Information Research Center
- ☐ Institute for International Education
- ☐ International Data Library and Reference Service
- ☐ Instructional Objectives Exchange, Center for the Study of Evaluation, Univ. of California (Los Angeles)
- ☐ International Clearnighouse on Science and Mathematics Curricular Developments
- ☐ Learning Research and Development Center
- ☐ Library Technology Program, American Library Association
- ☐ Mental Health Research Institute
- ☐ Midwestern States Educational Information Project
- ☐ National Association of Secondary School Principals (NEA)
- ☐ National Auxiliary Publications Service
- ☐ National Information Center for Educational Media (NICEM)
- ☐ National Institute for Child Health and Development Science Information Center
- ☐ National Institute for Mental Health Clearinghouse
- ☐ National Library of Medicine (MEDLARS)
- ☐ National Referral Center for Science and Technology
- ☐ Negro Bibliographic and Research Center
- ☐ Neurological Information Network
- ☐ Office of Information, U.S. Office of Education
- ☐ Office of Manpower and Employment Statistics, Bureau of Labor Statistics
- ☐ Office of Legislation, U.S. Office of Education
- ☐ Population Reference Bureau
- ☐ Project INTREX
- ☐ Project Public Information
- ☐ Regional Educational Laboratories
- ☐ Research and Development Center in Educational Stimulation
- ☐ Research and Development Center for Teacher Education
- ☐ Research Program in Child Development
- ☐ Research Utilization Branch, Bureau of Research, USOE
- ☐ School Information and Research Service
- ☐ School Research Information Service (SRIS)
- ☐ Science Information Exchange (SIE)
- ☐ TALENT Data Bank

WORK IN PROGRESS

- ☐ Contemporary Authors
- ☐ Pacesetters in Innovation (annual)
- ☐ Programs in Progress Encyclopedia
- ☐ Research in Education (monthly)
- ☐ Research Studies in Education (annual)
- ☐ Science Information Exchange *(see 'Information Agencies' section)*

UNPUBLISHED STUDIES

- ☐ DATRIX
- ☐ Dissertation Abstracts
- ☐ Masters Abstracts
- ☐ TALENT Data Bank *(see 'Information Agencies' section)*

PERIODICALS

- ☐ ALA Bulletin (monthly)
- ☐ American Documentation (quarterly)
- ☐ American Education (monthly; bi-m D to Jy)
- ☐ American Education Research Journal (quarterly)
- ☐ Audiovisual Instruction (monthly S to Jy)
- ☐ Automated Education Handbook
- ☐ Bulletin–National Assn of Secondary School Principals
- ☐ Child Development (quarterly)
- ☐ Children (bi-m, S to Jy)
- ☐ College and University Reports
- ☐ Comparative Education Review (3x yr)
- ☐ Congressional Quarterly Service
- ☐ Croft Newsletter Services
- ☐ Education
- ☐ Education Recaps (monthly)
- ☐ Educational Administration Quarterly
- ☐ Education Leadership (monthly O to My)
- ☐ Educational Technology (bi-m)
- ☐ Educational Product Report (9x yr)
- ☐ ERIC Document Collections
- ☐ Facts on File
- ☐ Government Contracts Guide
- ☐ Guide to Federal Assistance for Education
- ☐ Harvard Education Review (quarterly)
- ☐ Joint Council on Educational Telecommunications Data Base Service
- ☐ Journal of Applied Psychology (bi-m)
- ☐ Journal of Educational Psychology (bi-m O to Ag)
- ☐ Journal of Educational Research (10x yr)
- ☐ Journal of Research and Development in Education (quarterly)
- ☐ Journal of Teacher Education
- ☐ National Elementary Principal (6x year)
- ☐ Phi Delta Kappan (monthly S to Jn)
- ☐ Psychological Review (bi-m)
- ☐ Report on the Education of the Disadvantaged
- ☐ Review of Educational Research (5x yr)
- ☐ Saturday Review (weekly)
- ☐ School and Society (bi-m)
- ☐ Scientific Information Notes
- ☐ Social Education (monthly)
- ☐ Teachers College Record (monthly O to My)
- ☐ Theory into Practice (5x yr)
- ☐ Today's Education–The Journal of the NEA (monthly)
- ☐ Urban Education (quarterly)

MOREL 301–R69

REPORTS AND MONOGRAPHS

- ☐ Abstracts of Papers (AERA)
- ☐ Cooperative Research Monograph Series (USOE)
- ☐ NEA Research Reports
- ☐ What Research Says to the Teacher

INDEXING AND ABSTRACTING SERVICES

- ☐ Abstracts for Social Workers (4x yr)
- ☐ Abstracts of Computer Literature
- ☐ Abstracts of Instructional Materials in Vocational and Technical Education (AIM)
- ☐ Abstracts of Research and Related Materials in Vocational and Technical Education (ARM)
- ☐ Bibliographic Index
- ☐ Biography Index
- ☐ Book Review Digest (10x yr)
- ☐ British Education Index)
- ☐ Child Development Abstracts and Bibliography
- ☐ CIRF Abstracts
- ☐ College Student Personnel Abstracts
- ☐ Current Contents—Education (weekly)
- ☐ Current Index to Journals in Education
- ☐ Documentation Abstracts
- ☐ Education Index
- ☐ Education Administration Abstracts
- ☐ Guide to Microforms in Print
- ☐ Index to Periodical Articles By and About Negroes
- ☐ Library and Information Science Abstracts
- ☐ Library Literature
- ☐ Mental Retardation Abstracts
- ☐ Monthly Catalog of U.S. Government Documents
- ☐ Monthly Checklist of State Publications
- ☐ New Serial Titles
- ☐ New York Times Index
- ☐ Perceptual Cognitive Development (bi-monthly)
- ☐ Poverty and Human Resources Abstracts
- ☐ Psychological Abstracts
- ☐ Public Affairs Information Service Bulletin
- ☐ Reader's Guide to Periodical Literature
- ☐ Research Grants Index
- ☐ Research in Education
- ☐ Social Science and Humanities Index
- ☐ Sociological Abstracts
- ☐ State Education Journal Index
- ☐ Subject Index to Children's Magazines
- ☐ Vertical File Index

ANNUAL REVIEWS & STATE OF THE ART REPORTS

- ☐ Annual Phi Delta Kappa Symposium on Educational Research
- ☐ Annual Review of Information Science and Technology
- ☐ Assn. for Supervision and Curriculum Development Yearbook
- ☐ Biennial Survey of Education
- ☐ Bowker Annual
- ☐ Britannica Book of the Year
- ☐ Digest of Public General Bills & Selected Resolutions with Index
- ☐ International Yearbook of Education
- ☐ National Council for the Social Studies Yearbook
- ☐ National Society for the Study of Education Yearbook

BIBLIOGRAPHIC REVIEWS

- ☐ Bibliography on Knowledge Utilization and Dissemination
- ☐ The Teacher's Library: How to Organize It and What to Include
- ☐ "Outstanding Education Books of 19—" in Today's Education, the Journal of the NEA (annual, May)

BOOKS

- ☐ American Book Publishing Record
- ☐ Books in Print
- ☐ Cumulative Book Index
- ☐ Forthcoming Books
- ☐ Guide to Reference Books
- ☐ Paperbound Books in Print
- ☐ Publishers' Trade List Annual
- ☐ Reference Books in the Mass Media
- ☐ Scholarly Books in America
- ☐ Subject Guide to Books in Print
- ☐ Subject Guide to Forthcoming Books
- ☐ Textbooks in Print

ENCYCLOPEDIC SUMMARIES

- Encyclopedia Britannica
- Encyclopedia of Educational Research
- ☐ Encyclopedia of Library and Information Science

SEARCHER'S SIGNATURE	DATE COMPLETED

(from George Grimes and James Doyle, Information Resources, Michigan Ohio Regional Educational Laboratory, July, 1969, pp.8-9)

Operation of Educational Resources Information Center (ERIC) Clearinghouse on Teacher Education

1. Defining ERIC--a General Introduction

a. ERIC is:

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

A network of specialized centers or clearinghouses each of which is responsible for a particular educational area, and each of which acquires, evaluates, abstracts, indexes, and lists their findings for use in the ERIC reference products.

For those interested in education an invaluable source for obtaining documents as well as numerous other materials on education.

The Educational Resources Information Center (ERIC) is a national information system designed to provide access to the up-to-date valuable literature being produced on educational topics--and to provide these documents to the members of the nation's education community.

b. ERIC does:

Through its individual clearinghouses:

ERIC collects, synthesizes, analyses, stores, and disseminates information on education.

ERIC furnishes copies of documents on education at a nominal cost.

ERIC prepares bibliographies and research reviews on critical topics in education.

Through Central ERIC:

ERIC coordinates the efforts of decentralized in-

formation centers (the clearinghouses) throughout the country.

c. ERIC helps:

1) College and school administrators
2) Teachers of elementary, secondary, and higher education
3) Education supervisors and research staff members
4) Graduate and undergraduate students
5) Librarians and information specialists
6) Members and staff of professional organizations
7) Lay people, legislators, and school board study groups

d. ERIC helps to:

1) Identify new and significant educational developments
2) Apply new management tools and practices to local situations
3) Base budget estimates on latest research data to use as basis for innovation
4) Obtain the latest information on preservice and in-service training
5) Learn about new classroom techniques and materials
6) Discover "how-to-do-it" projects for personal and professional development
7) Gain access to latest information for preparing term papers, theses, and dissertations
8) Obtain information on career development in education
9) Build personalized, low-cost library on education
10) Keep up-to-date on research in one's field of interest
11) Avoid duplication of research efforts
12) Obtain full-text documents on research
13) Improve one's own teaching practices and overall curriculum
14) Complete bibliographies on specific educational topics
15) Assist others in educational research

2. Structure and Scope of ERIC

a. Beginning of ERIC

ERIC began in 1964 as a center for indexing and disseminating Bureau of Research documents.

b. Nineteen Clearinghouses

Today there are nineteen ERIC clearinghouses, non-profit organizations, sponsored by various educational organizations throughout the country.

Each clearinghouse is concerned with information in a specific subject area, and maintains set priorities to define that area. The clearinghouses existing to date cover the following sujbect areas:

1) Adult education
2) Counseling and personnel services
3) Disadvantaged
4) Early childhood education
5) Educational administration
6) Educational facilities
7) Educational media and technology
8) Junior colleges
9) Higher education
10) Library and information science
11) Linguistics
12) Reading
13) Rural education and small schools
14) Science education
15) Teacher education
16) Teaching of English
17) Teaching of foreign languages
18) Vocational and technical education

The locations of the nineteen clearinghouses have a wide geographical distribution throughout the country. This fact in itself provides greater accessibility to ERIC for the user. The locations include:

1) Syracuse, New York
2) Ann Arbor, Michigan
3) New York, New York
4) Urbana, Illinois
5) Eugene, Oregon
6) Madison, Wisconsin
7) Stanford, California
8) Washington, D. C.
9) Los Angeles, California
10) Minneapolis, Minnesota
11) Bloomington, Indiana
12) Las Cruces, New Mexico
13) Columbus, Ohio
14) Champaign, Illinois

c. Roles of the Individual Clearinghouses

With information related to its field each clearinghouse acquires, evaluates, abstracts, indexes, and lists documents in the ERIC reference products.

Each clearinghouse also generates newsletters, bulletins, bibliographies, research reviews, and interpretive studies on educational subjects such as state of the arts papers. Each clearinghouse works to satisfy the needs of the educational area it serves.

Besides indexing documents for the central ERIC reference products, each clearinghouse has a local collection of documents, of special significance to its subject area alone.

Every clearinghouse has a complete library of all of the ERIC reference products and document collections, and as such can serve as specialized reference libraries for the user.

Because the geographical distribution of the locations of the clearinghouses is so expansive, many users can take advantage of the clearinghouses by actual contact, if other research tactics using the ERIC products fail.

d. Comprehensiveness of ERIC

Through its several publications both the central ones and the individual publications of the clearinghouses, ERIC reaches an estimated 400,000 monthly subscribers.

RIE has more than 4,400 monthly subscribers.

About 5.2 million documents have been sold by ERIC Document Reproduction Service.

By December 1968 the ERIC collection included over 18,000 screened educational reports.

More than 60,000 educators have received direct, personal assistance from ERIC clearinghouses.

Clearinghouses have disseminated more than 350 state of knowledge reviews, bibliographies, and guides in instructional materials.

e. Futue of ERIC

With greater and greater awareness of the value of the ERIC system, and more contributions from people in education to ERIC, ERIC may become an even more resourceful system and service to serve the nation's educational community.

3. Using ERIC

a. What There is to Use

The continuing publications of ERIC include Research in Education, (RIE), a monthly index, as well as Research in Education, the Annual Index, 1967, 68, and the semi-annual index for 1969.

A new index for periodical literature in education, the Current Index to Journals in Education.

The key to the use of both RIE and CIJE as well as the key to using most of ERIC's other indexes is the Thesaurus of ERIC Descriptors.

In the historical collection there are two volumes of the Office of Education Research Reports, the Resumes, and the Indexes, 1956-1965.

And in the other ERIC collections are Pacesetters in Innovation, for Fiscal Years, 1966, '67, and '68, the ERIC Catalog of Selected Documents on the Disadvantaged, Selected Documents in Higher Education and Manpower Research: Inventory for Fiscal Years, 1966, '67.

The documents themselves when available as designated in the indexes come in two forms. They are produced in microfiche, a 4 x 6 inch sheet of film containing up to 60 pages per sheet. These require a microfiche reader for use. There is also the hard copy production, a reproduction of the document on paper at about 70 percent of the original size.

There are as well the local products, the newsletters, bulletins, bibliographies, research reviews, and interpretive studies, prepared by the individual clearinghouses.

Finally, there are the local collections of documents at each clearinghouse.

b. Where to Obtain ERIC's Sources

In December 1968, RIE had 4,442 paid subscribers

from every state in the Union, the District of Columbia, the Trust Territories of the Pacific Islands, and 39 foreign countries.

Subscribers of RIE presently include:

35% institutions of higher education
32% state and local education agencies
33% all other (governmental bodies, foreign, nonprofit and profit making groups and individuals)

If the index or document you wish to use or obtain is not in your nearby library, university, or education center, they may be obtained by subscription to:

Superintendent of Documents
U. S. Government Printing Office
Washington, D. C.

The documents may be obtained in microfiche and/or hard copy from:

ERIC Document Reproduction Service
The National Cash Register Company
4936 Fairmont Avenue
Bethesda, Maryland 20014

c. Search System--Using the Reference Tools

1. Using the Thesaurus of ERIC Descriptors

The Thesaurus of ERIC Descriptors is a structured compilation of approximately 3200 educational terms used to index and enter documents in the ERIC system. The use of the Thesaurus is the key to the use of the several indexes, in particular RIE. A careful and accurate explanation of how to use the Thesaurus needs to be included in the instructional packages. (To be worked out and included later.)

In terms of availability, the Thesaurus is published on a yearly basis for general use. Also available to the abstractor/indexers of the individual clearinghouses is a monthly updated version of the Thesaurus in mimeographed form.

The Thesaurus includes a foreword, introduction, sample Thesaurus entry, descriptor group listing, descriptor listing, rotated descriptor display, and bibliography.

2. Using Research in Education, [RIE]

Research in Education, RIE, is a monthly abstract journal reporting on newly funded research projects supported by the Bureau of Research, U. S. Office of Education; recently completed research or research-related reports; and other documents of educational significance, regardless of source.

Indexes available:

The indexes available include the Annual Index of ERIC documents, the semi-annual index, and the monthly indexes with resumes.

Each monthly index includes an index of selected ERIC documents with ED numbers and an index of ERIC projects, on-going research projects sponsored by the Office of Education with EP numbers.

Organization of Index

The index is organized by Document Section, including document resumes, a subject index, and author index, and an institution index; by a Project Resumes Section, including project resumes, subject index, investigator index, and institution index; by Accession Number Section with a cross reference index; and a note on How to Order ERIC Products.

The Design of the index is by:

Subject to find documents and projects on a specific topic through the use of descriptors (Thesaurus terms)

Author or investigator to find out what an author has written or to learn what an investigator is now doing

Institution to find out what an institution has published or what research projects are now being conducted at an institution

Accession number to identify a document number when only the clearinghouse number is available

The Resume

Each of the monthly indexes of RIE includes a

series of resumes on all of the documents ERIC has processed that month and on all of the projects.

The resumes are indexed numerically according to their ED (ERIC Document) or EP (ERIC Project) number.

Information in the Report Resume may include the ERIC accession number, legislative Authority Code for identifying the legislation which supported the research activity, and the clearinghouse accession number.

Cataloguing may include authors, title and organization where the document originated, the sponsoring agency responsible for initiating funding and managing the research project, the report number and/or Bureau number assigned by originator, the date published, the contract or grant number (contract numbers have OEC prefixes), a descriptive note listing the number of pages the document, an alternate source for obtaining documents, the EDRS price (the price through the ERIC Document Reproduction Service), an indication of the document's availability in MF (microfiche) and/or HC (hardcopy) or not available from EDRS in which case another source will have been given above.

Indexing--in the resume will include Descriptors, subject terms from the Thesaurus which characterize substantive contents. Only the major terms, preceded by an asterisk, are printed in the subject index. These terms enable a coordinate search. Indexing also includes Identifiers, additional identifying terms not found in the Thesaurus of ERIC Descriptors.

Abstract--an objective summary of the content of the document. From the abstract one can determine whether a particular document pertains to the subject being researched. The abstractor's initials are included in parentheses at the end of the abstract.

It is important to underline the objectivity of the abstract. The abstract is simply a report on the content of the document; no evaluation is involved here.

There are two kinds of abstracts, the informative and the indicative. The indicative would be used, for example, on a bibliography.

3. Using Current Index to Journals in Education, CIJE

CIJE indexes journals in the field of education and covers periodical literature relating to the field of education.

Unlike RIE, CIJE includes no abstracts of the articles. Nor does ERIC provide a file of the articles in microfiche or hard copy. The index is simply an added service providing an efficient resource for periodical material in education.

Indexes available with EJ (ERIC Journal) numbers include a monthly index, a semi-annual index, and an annual index.

The design of the CIJE includes:

A foreword

An introduction

A section on how the index is organized

The descriptor groups, a numerical coding of groups of articles into broad subject categories

A source journal index which details the names of journals from which the indexed articles are taken

Main entry section for focus on an area in the field of education of interest. The resume in the main entry section includes the EJ number, the Descriptor Group Code, the Clearinghouse Accession Number, the title, the author, the abbreviated journal title, the volume and issue number, the publication date, the number of pages, the descriptors, Thesaurus subject terms, which characterize substantive contents. Only the major terms, preceded by an asterisk, are printed in the subject index; and the identifiers, identifying terms not found in the Thesaurus of ERIC Descriptors.

Subject Index, with as many as five Thesaurus descriptors per journal. These descriptors are those terms preceded by an asterisk in the applicable main entry. Also included are the title and EJ number.

Author Index includes the author's name given in

full when available. If co-authors are responsible for the article, both names are indexed. If more than two authors are given with the article, only the first author is indexed. Also included are the title and the EJ number.

4. The ERIC Catalog of Selected Documents on the Disadvantaged

This index contains two volumes, a subject index and a number and author index of 1,740 selected documents related to educational programs for the disadvantaged.

The subject index is a coordinate indexing system supplying only document numbers on subjects of interest to the user.

The Number and Author Index:

The number index is a sequential listing of each document by document number, ED 001001 through ED 001740, with a complete bibliographical citation for each document, including originator control number (s), identification, author (s), title of document, publication title, editor (s), place of origin, publisher or source, volume, pages, date, total pages, and ERIC Document Reproduction Service prices for microfiche and hard copy.

The Author Index is an alphabetical listing of personal authors for each document, together with the document number.

5. Pacesetters in Innovation Index for Fiscal Years 1966, '67, '68

This index is a compilation of planning and operational grants under Title III, Supplementary Centers and Services, of the Elementary and Secondary Education Act of 1965. The index presents information on Projects to Advance Creativity in Education (PACE).

The index is organized by subject, by local education agency, by project number (ES), and by project resume.

6. Manpower Research for Fiscal Years 1966, '67

This is an index of selected manpower research reports, sponsored by member agencies of the Interagency Committee on Manpower Research whose membership includes representatives of the Departments of Labor; Health, Education, and Welfare; Housing and Urban Development; the Office of Economic Opportunity and the Bureau of the Budget.

The index is organized in two sections. A resume section is listed according to accession number (MP 000 001-MP---392). The index section is arranged by subject, by institution responsible for preparing the reports, by sponsoring agency, and by the individuals who did the research.

7. Selected Documents in Higher Education is a number and subject index, covering 845 documents.

8. Office of Education Research Reports, 1956-1965 is an index of research reports received before the publication of RIE. The index is compiled in two volumes, Resumes and Indexes, by author, institution, subject, and report numbers.