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ABSTRACT

The document contains the three Summary of Activities Reports (1970 through 1973) that the American Society for Information Science submitted to the Office of Education and the National Institute of Education. The performance categories for each report include: 1) document processing; 2) information analysis; 3) services; 4) promotional activities; 5) publicity and public relations, and other special activities. The section on document processing describes acquisition and selection procedures, and analyzes the input to "Research in Education" and "Current Index to Journals in Education." The section on information analysis lists Clearinghouse publications produced during the contract period, covering extensive papers, bibliographies, and other substantive products. The section on services analyzes the types and sources of requests received by the clearinghouse. The promotional activities, including newsletters, brochures, press releases, and bulletins, are discussed. The section on public relations deals with participation in panels, ERIC workshops, and related activities. (CH)

asis

AMERICAN SOCIETY FOR INFORMATION SCIENCE

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ED 088443

SUMMARY OF ACTIVITIES REPORTS

OF THE

ERIC CLEARINGHOUSE ON LIBRARY AND INFORMATION SCIENCES

1970, 1971-72, 1972-73

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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CLEARINGHOUSE ON LIBRARY
AND INFORMATION SCIENCES

OPERATED FOR THE U.S. OFFICE OF EDUCATION BY THE AMERICAN SOCIETY FOR INFORMATION SCIENCE
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HERBERT R. KOLLER *Director*

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CLEARINGHOUSE ANNUAL REVIEW SESSION

A Report of Activities from May 1 to December 21, 1970

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Clearinghouse on Library and Information Sciences/
Office of Education - Annual Review - December 1970

1. Acquisition and Selection

Selection

Scanning serial publications
Scanning monographs & other publications
Staff conferences formal & informal

Duplicate Check

Check order, received, Acquisitions Data
List, and Acquisitions Data Log
Check bibliographic records
Check RIE Indexes

Orders Prepared

Address verified
Order form typed
Letter typed & mailed
Order record dated, counted & filed
Typing special correspondence
Bookkeeping

Professional Supervision

Revision of work
Verification of source address, special
instructions, etc.
Special correspondence

Receipt of Material

Files checked, receipt recorded
Special follow-up (2nd copy, release, payment)
Review of receipts by librarian (Check for
scope, level, special problems)

Special Acquisitions Efforts

Setting-up standing orders
Personal contacts
General mailings, etc.

Task Description	Task Performed by	Quantity Per Year	Time Per Unit	Time thru 2/77	Cost
<p>Selection</p> <p>Scanning serial publications</p> <p>Scanning monograph & other publications</p> <p>Staff conferences - formal & informal</p>	<p>Librarian</p> <p>Librarian</p> <p>Librarian</p>	<p>1000</p> <p>750</p>	<p>10 min.</p> <p>5 min.</p>	<p>166 hrs.</p> <p>62 hrs.</p> <p>100 hrs.</p>	
<p>Duplicate Check (70/mo)</p> <p>Check order, rec'd & ADL</p> <p>Check bibliographic records</p> <p>Check RIE Indexes</p>	<p>L.A.</p> <p>L.A.</p> <p>L.A.</p>	<p>840</p> <p>840</p> <p>840</p>	<p>1 min.</p> <p>1 min.</p> <p>2 min.</p>	<p>14 hrs.</p> <p>14 hrs.</p> <p>28 hrs.</p>	
<p>Orders Prepared (56/mo.)</p> <p>Address verified</p> <p>Order form typed</p> <p>Letter typed & mailed</p> <p>Order record dated, counted & filed</p> <p>Typing special correspondence</p> <p>Bookkeeping</p> <p>Payment for Monographs</p>	<p>L.A.</p> <p>L.A.</p> <p>L.A.</p> <p>L.A.</p> <p>L.A.</p> <p>L.A.</p>	<p>672</p> <p>672</p> <p>672</p> <p>672</p> <p>168</p> <p>672</p>	<p>½ min.</p> <p>2 min.</p> <p>2½ min.</p> <p>1 min.</p> <p>8 min.</p> <p>½ min.</p>	<p>56 hrs.</p> <p>224 hrs.</p> <p>280 hrs.</p> <p>112 hrs.</p> <p>22 hrs.</p> <p>28 hrs.</p>	
<p>Professional Supervision</p> <p>Revision of work</p> <p>Verification of source address, special instruction, etc.</p> <p>Special correspondence</p>	<p>Lbn.</p> <p>Lbn.</p> <p>Lbn.</p>	<p>672</p> <p>224</p> <p>168</p>	<p>½ min.</p> <p>3 min.</p> <p>5 min.</p>	<p>56 hrs.</p> <p>11 hrs.</p> <p>14 hrs.</p>	
<p>Receipt of Material (75/month)</p> <p>Files checked, receipt recorded</p> <p>Special follow-up (2nd copy, release, payment)</p> <p>Review of receipts by librarian</p> <p>(Check for scope, level, special problems)</p> <p>Special Acquisitions Efforts - setting-up standing orders, personal contacts, general</p>	<p>L.A.</p> <p>L.A.</p> <p>Lbn.</p> <p>Lbn.</p>	<p>900</p> <p>300</p> <p>900</p>	<p>1 min.</p> <p>3 min.</p> <p>3 min.</p>	<p>15 hrs.</p> <p>15 hrs.</p> <p>45 hrs.</p>	

SELECTION CRITERIA

The ERIC Clearinghouse on Library and Information Sciences (ERIC/CLIS) has responsibility for acquisitioning, processing and disseminating the results of research and research-related work in the library science and information science fields within the scope of interest. (See pages 3, 4, and 5).

Categorically, ERIC/CLIS is interested in documents which discuss:

1. Research and development activities in library science and information science
2. Administration and operation of libraries and information centers
3. Technology used in library systems and information systems
4. Education and training of librarians and information scientists
5. Applications of the above

All documents whose subject matter is within our scope are subjected to a series of questions which ultimately determine the "value" or contribution if incorporated into the ERIC System. This value is determined according to the following considerations:

1. Is the document too old?
2. Is it of ephemeral value only?
3. Can it serve as a model to persons and organizations in similar situations?
4. Does it represent an unbiased contribution, or is it public relations material?
5. If a foreign document, is the material of current interest in the U. S.?
6. Is the report actually probing into new areas or does it simply restate an age-old situation?
7. Is the report of local use only?
8. Does the report clearly discuss not only the results of a study, but

also present adequate prefatory or textual material so that others will benefit?

9. Is there enough material on library and information sciences within the document to merit processing? That is, is there enough information given so that our users will want to expend the time and money for the complete document?

10. Is the subject matter of current interest?

Scope for ERIC Clearinghouse on Library and Information Sciences

Information Retrieval

Search Strategies
Automation (as it relates to Information Retrieval)
Library Automation
Computational Linguistics (as it relates to Search Strategies)
Recall Ratio
Relevance (Information Retrieval)
Library Research
Literature Searches
Selective Dissemination of Information
File Organization & Search

Library and Information Processing

Bibliographic Coupling
Automatic Abstracting
Automatic Indexing
Abstracting
Cataloging
Classification
Indexing
Data Processing
Data Collection
Electronic Data Processing
Input/Output Process
Documentation
Information Storage
Information Utilization
Information Dissemination
Library Technical Processing
Codification
Permuted Indexing
Hierarchical Classification

Library and Information Sciences

Information Theory
Library Science
Computer Science (as it relates to LI's scope)
Microform Technology (as it relates to LI's scope)
Computer Technology
Programming Techniques

Library Services

- Library Reference Services
- Library Service
- Library Circulation
- Interlibrary Loans
- Library Programs
- Library Extension
- Bookmobile Services

Library and Information Systems

- Library Networks
- Dial Access Information Systems
- On Line Systems
- Information Networks
- Computer Systems
- Facsimile Communication Systems
- Indexing Systems
- Current Awareness Systems

Information Utilization

- Use Studies
- Research Utilization
- User Studies
- Library Surveys

Publishing Industry

- Information Sources
- Economics of Publication and ~~Publication Cycles~~

Terminology (as it relates to LI's scope)

- Subject Index Terms
- Thesauri Development
- System Vocabularies

Library Facilities and Information Centers

- Libraries
- Archives
- Library Schools
- Decentralized Library Systems

Library Materials & Equipment

Publications & Reference Materials (as they relate to LI's scope)
Carrels
Bookmobiles

Librarians and Information Science Personnel

Librarians
Information Scientists
Library Technicians
Library Specialists
Medical Records Librarians
Library Aids
Documentalists
Computer Specialists
Document Analysts
Programers

Library Organizations

Library Associations
Library Societies

*Library Education

Librarianship
Library Instruction
Education for Librarians
Library Training

General

U. S. Government role in information distribution
Relation of Information needs to writing and research
Nature of literature growth and change
Author's role in writing, indexing and abstracting
Economics and trends of utilization of information
Analysis of diffusion and flow of information
Evaluation studies of indexing
Statistics of indexing frequency
Library Cooperation
Library Expenditures
Library Planning
Library Skills
Library Standards
Facsimile Transmission
Library Acquisition
Library Material Selection
Creation and maintenance of Data Bases
Programing Languages

CIJE Input

Log serials

Distribute serials to work stations

ERIC Journal Article Resume

Descriptive cataloging

Including the following information:

Clearinghouse Accession Number

Author

Title

Journal Citation

Assign Group Code

Index and annotate

Type information on form

Proofread and edit

Shipment

Type Clearinghouse Accession Log Sheet

Proofread and edit log sheet

Xerox for internal files

Ship to New York

Filing

File photocopy of ERIC Journal Article

Resume form

File photocopy of Clearinghouse Accession

Log Sheet

Shelve serial

TASK DESCRIPTION	TASK PERFORMED BY	QUANTITY PER YEAR	TIME PER TASK	TIME PER YEAR	COST
Logging of 20 serials 6 monthly 3 bimonthly 1 semimonthly 10 quarterly	Library Assistant	72 18 24 40 <u>154 TOTAL</u>	1 min. per serial	1 hour 12 min. 18 min. 24 min. 40 min. 2 hours 34 min.	
Descriptive Cataloging, Indexing and Annotation LI 500 696 through LI 501 075 (May 11 through Dec. 1) = 379 articles in 7 months or 54 per month	Information Scientist	648	20 min. per resume	216 hours	
Proofreading @ 5 min. for the work copy and @ 5 min. for the final copy	Information Scientist	648	10 min. per resume	108 hours	
Typing	Typist, or Secretary	648	7 min. per resume	75 hours 36 min.	
Shipping - Xeroxing 4 photocopies, internal distribution of 3 photocopies, and mailing of 1 copy to New York	Typist or Secretary	154	14 min. per serial	35 hours 56 min.	
Filing - photocopy in binder, 3 hole punch @ 1 min. per serial - shelving of 20 serials @ 1 min per serial	Library Assistant	154	2 min. per serial	5 hours 8 min.	

54 resumes per month x 12 months = 648 resumes per year

443 hour 14 min (or 26594 min.) ÷ 648 resumes = 41 min. resume from logging through shipping

* postage costs are not included

3. RIE Input

Control Procedures

- Complete ERIC/CLIS Document Control Form
- Duplicate Check
- Legibility Check
- Assign Accession Number
- Record information on the ERIC Clearinghouse Acquisitions Data form
- Prepare bibliographic slip
- Proofread and edit ERIC Clearinghouse Acquisitions Data form & bibliographic slip
- Separate and file bibliographic slip
- Chart documents for statistical record

ERIC Report Resume

- Descriptive cataloging
 - Including the following information:
 - Clearinghouse Accession Number
 - Program Area Code
 - Publication Date
 - Copyright Information
 - ERIC Reproduction Release
 - Level of Availability
 - Author
 - Title
 - Institutional Source and Source Code
 - Sponsoring Agency and Sp. Ag. Code
 - EDRS Price for hardcopy and for microfiche
 - Contract and Grant information
 - Report number
 - Bureau number
 - Availability statement
 - Page number
 - Descriptive note
- Type descriptive cataloging information on ERIC Report Resume form
- Proofread and edit descriptive cataloging information
- Distribute documents to work stations
- Index and abstract
- Type index and abstract information on ERIC Report Resume form
- Proofread and edit

Canidate Descriptors

- Gleaning definitions of terminology in the fields of library and information sciences
- Recommend candidate descriptors
- Generic structuring and provide information requested on the Descriptor Justification Form

RIE Input (Continued)

Shipment

Type Clearinghouse Accession Log Sheet
Proofread and edit log sheet
Xerox for internal files
Ship to LEASCO

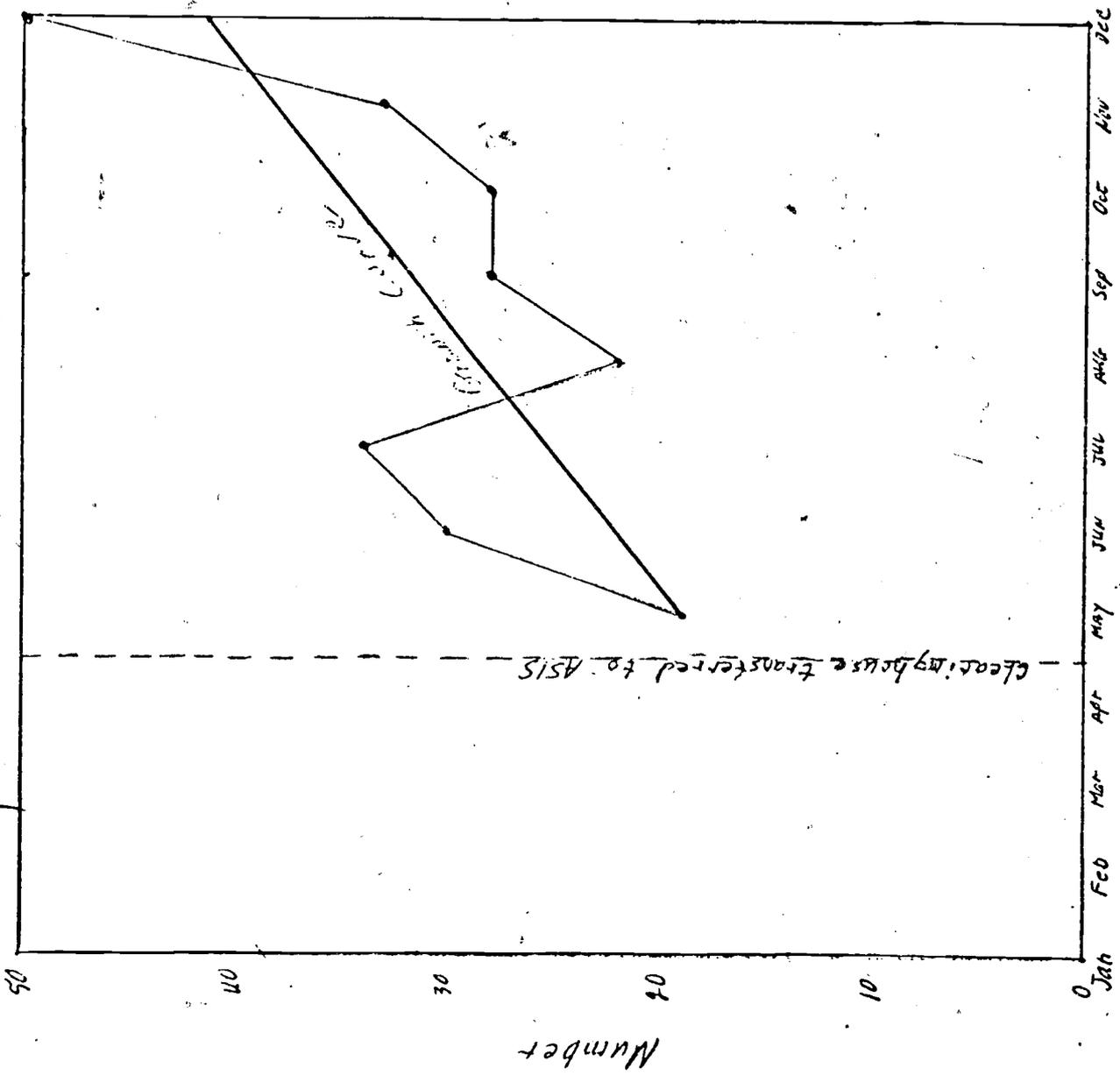
Filing

File photocopy of ERIC Report Resume form
File photocopy of Clearinghouse Accession
Log Sheet
Shelve document

Task Description	Task Performed by	Quantity Per Year	Time Per Task	Time Per Year	Cost
Abstract and Index on Worksheets	Information Scientist	360	45 min.	270 hrs.	
Proofreading @ 5 min. for worksheets and @ 5 min. for final copy	Information Scientist	360	10 min. per resume	60 hrs.	
Typing A & I on Resumes	Typist	360	5 min. per resume	30 hrs.	
Term Justifications	Information Scientist	5	2 hrs. per DJF	10 hrs.	
Shipment - Accession log sheets (ALS)	Information Scientist	12	30 min. per ALS	1 hr.	
Typing ALS	Typist	12	5 min. per ALS	1 hr.	
Proofreading ALS	Information Scientist	12	5 min. per ALS	1 hr.	
Xeroxing 5 photocopies (internal distribution of 2 copies, 1 copy mailed to LEASCO, 1 copy for abstract agreement (ISA) and 1 copy for other abstract agreements) and collating copies	Typist or Secr.	360 resumes 12 ALS	10 min. per resume	67 hrs.	
Filing - photocopy in binder	Typist or Secr.	12 sets	1 min. per set	12 min.	
Total				440 hrs. 17 min	

Task Description	Task Performed by	Quantity Per Year	Time Per Unit	Time Per Year	Cost
Work form completed	Lbn.	372	½ min.	3 hrs.	
Cataloging	Lbn.	372	1½ min.	9 hrs.	
ADL completed	L.A.	372	½ min.	3 hrs.	
Bibliographic slip prepared	L.A.	372	1 min.	6 hrs.	
Bibliographic slip separated & filed	L.A.	1488	3 min.	75 hrs.	
Page count	L.A.	372	3 min.	18 hrs.	
Top of Resume typed	L.A.	372	5 min.	31 hrs.	
Document shelved, forms filed	L.A.	372	1 min.	6 hrs.	
Transporting documents to work stations	L.A.	372	1 min.	6 hrs.	
Revision of Processing Records	Lbn.	372	5 min.	31 hrs.	
Charting of documents for statistics	Lbn.	372	½ min.	3 hrs.	

RIE RESUMES SHIPPED BY
ERIC/CLIS



1970

5. Local Files (limited processing)

(Average 21/mo.)

Task Description	Task Performed by	Quantity Per Year	Time Per Unit ^o	Time Per Year	Cost
Work form completed Cataloging information indicated ADL completed Bibliographic slip prepared & separated Bibliographic slip sorted & filed Document shelved, forms filed Charting of Documents for Statistics	Lbn. Lbn. L.A. L.A. L.A. L.A. Lbn.	252 252 252 252 1000 252 252	1/2 min. 1 1/2 min. 1/2 min. 4 min. 3 min. 1 min. 1/2 min.	2 hrs. 6 hrs. 2 hrs. 17 hrs. 50 hrs. 2 hrs.	

4. Local Files (complete processing)

No "complete processing" is performed for
the local collection

5. Local Files (limited processing)

Control Procedures

Complete ERIC/CIIS Document Control Form

Duplicate Check

Assign Accession Number

Record information on the ERIC Clearinghouse

Acquisitions Data form

Prepare bibliographic slip

Proofread and edit ERIC Clearinghouse

Acquisitions Data form and bibliographic slip

Separate and file bibliographic slip

Chart documents for statistical record

Shelve document

6. Extensive Papers

(1.) Abstracting and Indexing Rates and Costs: A Literature Review. Review Series No. 5.

- a. Physical Characteristics - This report is a comprehensive compilation and review of the literature relating to the costs of abstracting and indexing whether done alone or as part of a total system. Extracts and data summaries are included along with a 79-item bibliography of the relevant works that were identified.
- b. Purpose - To provide cost data based on actual experience of publications engaged in abstracting and indexing operations.
- c. Intended Audience - Library administrators and information science specialists.
- d. Personnel Engaged - Charles P. Bourne, Jeanne B. North and Madeleine S. Kasson

ABSTRACT - The report presents a comprehensive compilation and review of the literature relating to the costs of abstracting and indexing, both for the whole system of preparing and distributing an abstracting, reviewing, or indexing publication, and for the abstracting and indexing activities alone. Coverage was restricted to the English-language literature from 1950 to the present, as an expansion of previous reviews on the subject. A complete bibliography of the 79 relevant works that were identified is included and data given in these reports is extracted and summarized.

Completed - Fourth Quarter, 1970

- a. Physical Characteristics - This is a 25-page evaluative and interpretive review discussing the major trends in higher education and the response of academic libraries to these developments, with particular attention to developments related to undergraduate libraries, community college libraries, learning resources centers, the independent study movement, the library college movement and library programs in experimental colleges. Ninety-one references covering the literature after 1965 are included (ED 039.390).
- b. Purpose - To assess the response of academic libraries to new methods and directions in undergraduate education.
- c. Intended Audience - Administrators and educators concerned with library service for undergraduate education.
- d. Personnel Engaged - Patricia Knapp, Associate Professor, Dept. of Library Science, Wayne State University, Detroit, Michigan

ABSTRACT - Following a discussion of the major trends in higher education, the response of academic libraries to these developments is considered, with particular attention to developments related to undergraduate libraries, community college libraries, learning resources centers, the independent study movement, the library-college movement and library programs in experimental colleges. The base line for this selective, evaluative and interpretive review was provided by a bibliography based on a literature search conducted by the ERIC Clearinghouse for Library and Information Science staff at the University of Minnesota. Emphasis is on publications since 1965. A major impression received from reviewing the literature on library services for undergraduate education is that a great deal more is said about what ought to be done than about what is actually being done. A second and related general impression is that the library response to new developments in undergraduate education is disappointing because so little of a truly innovative nature is occurring in undergraduate education itself. Exceptions to these generalizations are noted. The text is followed by a list of references.

Completed - Third Quarter, 1970

(3) The Economics Of Information: A Literature Survey

- a. Physical Characteristics - This report explores the bodies of literature pertinent to the economics of information and consists of the following:
 - (1) a short section on the economist's framework for analysis
 - (2) a table that divides the pertinent literature into 14 categories, briefly defines each category and explains why it is important to information activities
 - (3) a selected bibliography of 160 references
- b. Purpose - To identify and briefly describe the recent monographs and major reports plus literature survey articles which are applicable to the economics of information handling.
- c. Intended Audience - The report is geared to management personnel in libraries and information centers.
- d. Personnel Engaged - Mr. Harold A. Olsen, School of Library and Information Services, University of Maryland, College Park, Md., along with backup bibliographic support from the ERIC/CLIS staff.

ABSTRACT - This report explores the bodies of literature pertinent to the economics of information, a topic of growing interest to the information community and to economists. As used here, economics of information refers to the concepts and tools of economics as they apply to information activities. The report consists of (1) a short section on the economists' framework for analysis, (2) a table that divides the pertinent literature into 14 categories, briefly defines each category, and explains why it is important to information activities, and (3) a selected bibliography. Representative items are listed for each of the 14 categories. The selection favors the economic rather than information literature and is limited mainly to recent monographs and major reports plus literature survey articles.

(4.) Use and Economics of Extracts in Information Services

- a. Physical Characteristics - This will be a State-of-the-art Paper including an annotated bibliography. In addition, a survey letter will be sent to over 400 librarians and information scientists who are working in the field. It is believed that most of the activities on the use of extracts are within the industrial sector.
- b. Purpose - To evaluate the adequacy of extracts as compared to abstracts; whether extracts can replace abstracts or whether they are useful only for such services as SDI or current awareness; and whether specific procedures have been established for selecting extracts and, if so, what they are. The overall purpose is to determine whether and how extracts as a substitute for abstracts will lessen the cost, and time, and money of information transfer.
- c. Intended Audience - Operators and management personnel involved in information services.
- d. Personnel Engaged - Miss Nancy Helmuth, Information Scientist of ERIC/CLIS and Mr. J.I. Smith, Associate Director, ERIC/CLIS.

Completion - First Quarter, 1971.

(5) Library Serials Control Systems: A Literature Review and Bibliography.

- a. Physical Characteristics - This report is a comprehensive review of the literature on automated serials control systems. Topics of concern to users are covered and a selected bibliography of 158 items is included.
- b. Purpose - To synthesize developments and accomplishments in the field to acquaint users and planners of automated serials systems of the current state-of-the-art.
- c. Intended Audience - Library administrators, system analysts and planners.
- d. Personnel Engaged - Elizabeth Pan, Five Associated University Libraries, Syracuse, New York.

ABSTRACT - This report reviews the literature on automated serials control systems and presents conclusions drawn from the issues raised in the literature. Major serials systems are described and topics of concern to users and designers of such systems, including user studies, technological developments in the field, emerging national standards, and costs, are discussed. A selected bibliography, arranged under broad subject categories, is included.

Completed - Fourth Quarter, 1970

(6.) Machine Readable Bibliographic Records: Criteria and Creation. Review Series No. 4.

a. & b. Physical Characteristics and Purpose - A state-of-the-art paper on the subject, including consideration of (1) Data elements and "fields", (2) Methods of inputting data, (3) Special questions and problems, including cost.

c. Intended Audience - Practitioners, administrators and students.

d. Personnel Engaged - Ritvars Bregzis, University of Toronto.

ABSTRACT - The centrality of bibliographic records in library automation, objectives of the bibliographic record file and elemental factors involved in bibliographic record creation are discussed. The practical work of creating bibliographic records involves: (1) data base environment, (2) technical aspects, (3) cost and (4) operational methodology. The application of automated processes to library service functions is dependent on the availability of appropriately structured and functional bibliographic data files. There is a general lack of such files. The known bibliographic record files range widely in their scope of coverage, size, detail of data coverage, functional orientation, and method and cost of production. As a rule they are not mutually compatible. The machine readable bibliographic record services offered by the Library of Congress and the British National Bibliography constitute a trend in distribution of machine readable records of standardized definition and multi-purpose functionality to the library world at consistently increasing rate. Although cooperative creation of large bibliographic record files appears to be a feasible objective for the coming decade, it is not clear to what extent a similar sharing by the small library of the required computing services will become possible for purposes of cooperative utilization of the cooperative bibliographic data files.

Completed - Fourth Quarter, 1970

(7) Microform Technology in Libraries and Information Centers

- a. Physical Characteristics - A series of State-of-the-art Papers on the subject covering topics such as format, types of materials available, suitability of the various formats to libraries and information centers, problems in the use of microforms and other special problems. The first report will be a general literature survey, covering the economics of microforms, emerging standards and general applications. Following that will be state-of-the-art reports on: (1) the use of microfiche; (2) the use of roll microfilm; (3) use of aperture cards; and (4) computer output on microfilm.
- b. Purpose - To identify the major significant activities as they apply to libraries and information scientists, problem areas, current thinking and available technology on the subject.
- c. Intended Audience - Administrators of libraries and information centers and all others interested in the topic.
- d. Personnel Engaged - Mr. Arthur Hinkley, Head, NATIT Section of Management Information Branch, Program Management Office, Navy Research and Development Information Center, plus bibliographic support from the ERIC/CLIS staff.

Completion - February, 1971.

(8) Marketing Products of Information Analysis Centers

- a. Physical Characteristics - This report will consist of a State-of-the-art Survey and an annotated bibliography on the marketing of information analysis products. It will focus on three ways in which information analysis products are presently marketed:

- (1) everything done by the center
- (2) in the hands of a commercial organization
- (3) a combination of both

Much emphasis will be placed on the experiences of present information analysis centers.

- b. Purpose - To produce a document which will serve as a basic reference tool for managers of information analysis centers on how, what and when to market their products.
- c. Intended Audience - Operators, managers and users of products and services of information analysis centers.
- d. Personnel Engaged - Mr. T.F. Connolly, Director Research Materials Information Center, Oakridge National Laboratories, Oakridge, Tenn., and Mr. W.H. Veazie, Electronic Properties Information Center, Hughes Aircraft Co., and bibliographic support from the ERIC/CLIS staff.

Completion - February 1971.

(9.) A Research Design for Library Cooperative Planning and Action in the Washington, D.C. Metropolitan Area

- a. **Physical Characteristics** - This 71-page report also supported by the Librarian's Technical Committee of the Metropolitan Council of Governments and the Federal Library Committee, provides an in-depth study of the needs for cooperative planning among public, Federal, university, school and special libraries in the D.C. metropolitan area. Research designs for both priority and subsequent research in library cooperation are given, along with a guide for implementing the recommended designs. A selective bibliography of references pertinent to the subject is appended (ED 040 306).
- b. **Purpose** - To develop programs for area-wide cooperation among libraries of all types to provide more effective application of library managerial and operational techniques in order to improve library services at the least possible cost.
- c. **Intended Audience** - All types of libraries concerned with interlibrary cooperation.
- d. **Personnel Engaged** - Funds were provided by the ERIC Clearinghouse on Library and Information Science.

ABSTRACT - The development of interlibrary cooperation in the National Capitol Area is not a simple task. The multiple, complex relations of governments on varying levels and the existence and independent sponsorship of important private association, industrial, academic and other libraries impose severe problems for any cooperative movement. A far-reaching investigation and a study in-depth of all the factors affecting interlibrary cooperation are essential as a first step in any cooperative program. Thus, this study was undertaken to: (1) assess needs for cooperative planning and action among the various types of libraries (public, Federal, university, school and special) in the metropolitan area and (2) prepare a design for subsequent research and demonstration in the areas of need. The objective was to design needed studies not evaluate programs. Over 50 in-depth interviews with people knowledgeable in the field were conducted to assess needs and assign priorities to those needs. Chapter I establishes the background of the study. Chapter II summarizes the individual areas recommended for subsequent research in interlibrary cooperation and action. The interrelationships of the component research programs are analyzed and requirements for manpower, finances and phasing of research effort recommended. Chapter III serves as a guide for implementing the recommended research design in library cooperation:

Completed - Third Quarter, 1970

(10) State and Regional Library Studies: a State-of-the-art Paper, review series No. 3

- a. Physical Characteristics - This 14-page review assesses the state of the art in recent state and regional library studies, which have increased radically in number in the past five years. A 15-item bibliography and the results of the analysis are appended (ED 039 389).
- b. Purpose - To examine and analyze the studies listed in the ERIC bibliography Library Surveys and Development Plans (ED 031 609) covering the period 1965-1969, and synthesize current trends in planning regional and state library resources.
- c. Intended Audience - Students and persons engaged in state or local planning.
- d. Personnel Engaged - Ralph Blasingame and F. William Summers, Graduate School of Library Science, Rutgers University.

ABSTRACT - The studies examined were all issued since 1965, thus, this is not a historical study of progress (or decline) in methodology, idea development or the actual results ensuing from the study process but rather it is an attempt to aid in assessing such matters as the thoroughness and care with which state and regional library studies are now normally carried out. The ERIC bibliography "Library Surveys and Development Plans" (ED 031 609) was chosen as the data base for this study to insure recency, the ERIC list which covers the 1965-1969 period was chosen over several earlier lists covering larger time periods. Tables are given to present: (1) distribution of studies by year of publication, (2) distribution of studies by type of library, (3) distribution of studies by library function, (4) distribution of studies by investigator, (5) distribution of sample by investigator as compared to the population and (6) comparison of sample and population distributions by type of library. Section IV presents a sequential resume of the analysis of the data in terms of the 16 questions against which the studies were examined. Appendix II is a complete tabulation of the questions.

Completed - Third Quarter, 1970.

(11)

A Study of Resources and Major Subject Holdings Available in U.S. Federal Libraries Maintaining Extensive or Unique Collections of Research Materials

a. Physical Characteristics - This is a 670-page report containing results of a study to determine the resources and major holdings of U.S. Federal libraries maintaining extensive or unique collections of research materials. A class listing of subject resources arranged by library and an alphabetical list of libraries are included.

b. Purpose - To determine the nature and availability of the resources within Federal libraries.

c. Intended Audience - Librarians concerned with interlibrary loans, researchers, and library network planners.

d. Personnel Engaged - Mildred Benton, Signe Ottersen, Caroline Stanley, Marion Swenson and Elizabeth Hedges of the Biological Communications Project of the George Washington University, Washington, D.C.

ABSTRACT - One hundred and eighty-eight selected special libraries were surveyed in an initial attempt to study the resources and major subject holdings available in U.S. Federal libraries maintaining extensive or unique collections of research materials. The objectives were twofold: (1) to determine the nature and availability of the various collections and (2) to provide access to subject coverage through both alphabetical listing and a class arrangement. Computer prepared tables which identify the libraries involved and which interpret and compare in hierarchical arrangement the data obtained in a systematic fashion are presented. An alphabetical list of the subjects reported by and available in the libraries studied is also provided. The subject coverage was widespread, however, there is a noticeable concentration in history and the pure sciences. Religion was represented the least. The definitions of Exhaustive and Research collections used in the study were insufficient to enable librarians to do more than report the status of their collections based on their own evaluation and interpretation.

Completed - Fourth Quarter, 1970

8. Extensive Bibliographies

(12.) ERIC Products 1969-1970

- a. Physical Characteristics - ERIC Products consists of complete bibliographic information and brief abstracts describing the information analysis products of the ERIC Clearinghouses during FY1970. Information concerning the availability and the format of each product, e.g., Review Paper, State-of-the-art Paper, Bibliography, etc., is included as well as a statistical summary of the type and total number of publications from each Clearinghouse. In addition, this year's publication includes a subject index.
- b. Purpose - To provide a single, unified reference source for the identification of information analysis publications of the ERIC Clearinghouses.
- c. Intended Audience - Central ERIC, ERIC Clearinghouses, and all those interested in the activities of the entire ERIC program.
- d. Personnel Engaged - Nancy Helmuth, Sharon Georgie, J.I. Smith, ERIC/CLIS.

ABSTRACT - The third annual bibliography of ERIC Clearinghouse publications reflects information analysis activities of each Clearinghouse. It includes all substantial bibliographies, review papers and state-of-the-art papers identified as ERIC publications. The 366 annotated items for Fiscal Year 1970 are arranged alphabetically by Clearinghouse and, within each Clearinghouse, alphabetically by author. The availability and cost of each cited document is provided. This issue also has an alphabetic subject index using ERIC Thesaurus terms.

Completed - Third Quarter, 1970.

10. Other Substantive Products

(13.) Implications to the Federal Library Community of the Conference on Library Networks Communication and Information.

- a. Physical Characteristics - This report will contain comments of working panel groups at the Conference on the problems, accomplishments, and recommendations of the Conference, as expressed during a meeting called by the Federal Library Committee for this purpose.
- b. Purpose - To allow participants at the Conference to express views and convey information, which would not be contained in the formal Proceedings, now being printed.
- c. Intended Audience - Librarians, library administrators and network planners.
- d. Personnel Engaged - ERIC/CLIS and the Federal Library Committee.

Completion - First Quarter, 1971.

(14.) Roster of Federal Libraries

a. Physical Characteristics - This report contains a listing of over 1,900 Federal libraries serving the Federal Government, under alphabetical, geographical and type arrangements.

b. Purpose - To identify the component libraries of the Federal system as a source tool on which further statistical studies, future cooperative planning and similar studies can be based.

c. Intended Audience - Library administrators and planners, network system planners, and persons wishing to locate Federal libraries.

d. Personnel Engaged - Mildred Benton and Otterson Signe, Biological Communications Project, George Washington University, Washington, D.C.

ABSTRACT - This Roster of Federal Libraries represents an attempt by the Federal Library Committee to identify each of the more than 1,900 individual libraries serving the many departments, committees, agencies, courts, and other formal organizational entities in the Federal Government. They include six types: Presidential, national, general, academic, school, and special or technical. Part I of the three part roster is arranged, alphabetically, within the designated Branches of the Government, then by country, state and city. Part II provides a geographic arrangement, first by country alphabetically, then by state, city, department and bureau. Part III is a listing, alphabetically, by general subject category or type of library. Within the subjects the libraries are arranged by country, state, city, department and bureau. A descriptive explanation and index to contents precedes each of the three parts. A National Plan for Federal Library Statistics has been designed by the Federal Library Committee's Subcommittee on Statistical Programs. It is scheduled for testing in fiscal year 1971 and implementation starting in fiscal year 1972. The Plan will permit accurate, annual identification of Federal libraries. Rosters, based upon information received, will be issued on a regular basis.

7
Information Analysis Publications Already in Progress
To Be Completed during FY '71 Contract Year

Abstracting and Indexing Services

- a. Physical Characteristics - A state-of-the-art report and exhaustive bibliography.
- b. Purpose - To study the role, services, products and activities of the major abstracting and indexing operations comparing such things as selection, evaluation, bibliographic format, availability and subject matter coverage. The ERIC system will be a part of the report. It is hoped that the following questions will be answered:
 1. Where does a user go when he is in need of information which can best be provided by A&I services?
 2. How are information analysis centers employing these services?
 3. Who are the primary customers and why?
 4. What is the need and/or rationale for A&I services and products?
 5. What is the future for A&I services?
- c. Intended Audience - Users and operators of libraries, information analysis centers and information handling operations.
- d. Personnel Engaged - Miss Stella Keenan, Executive Director, NFSAIS (still in negotiation stage)
- e. Completion - Third Quarter, 1971.

Available Computer Software Programs for Library Applications

- a. Physical Characteristics - A directory and reference publication consisting of computer software programs which have been successfully developed and are in a current operating stage. This product will describe those programs employed for each library application, including the specific computer configuration.
- b. Purpose - To provide a basic referral tool for those contemplating library automation and hopefully save on the exorbitant costs for creating a program for use with unnecessarily expensive computers for basic library applications. The basic purpose is to put people in touch with colleagues who have already accomplished similar tasks under similar conditions.
- c. Intended Audience - Librarians, information scientists, systems analysts and computer specialists.
- d. Personnel Engaged - Information Science and Automation Division of ALA, Special Interest Group on Library Automation, and networks of ASIS and ERIC/CLIS.

Available Text Books for Information Science Curricula

- a. Physical Characteristics - Annotated Bibliography
- b. Purpose - To describe strengths and weaknesses and where they are being used.

c. Intended Audience - Educators in library and information science.

d. Personnel Engaged - Not yet identified.

Bibliographic Standards and Control

a. Physical Characteristics - State-of-the-art report and bibliography.

b. Purpose - To review the literature and identify major activities and problem areas and highlight significant progress in this area. This report is of special significance to the library and information science communities in view of the emerging networks and the application of information handling techniques in libraries.

c. Intended Audience - All libraries and information centers.

d. Personnel Engaged - Presently negotiating with Phoebe Hayes, Director, Bibliographic Center for Research, Denver, Colorado.

e. Completion - Third Quarter, 1971.

Continuing Education for Librarians

a. Physical Characteristics - A state-of-the-art report and bibliography on continuing education in the library field.

b. Purpose - To review and identify past and current continuing education programs.

c. Intended Audience - Librarians, administrators and educators of library schools.

d. Personnel Engaged - Dr. Elizabeth Stone, Associate Professor, Graduate Dept. of Library Science, Catholic University, Washington, D.C., along with bibliographic support from the ERIC/CLIS staff.

e. Completion - Third Quarter, 1971.

Cooperative Ventures in Libraries and Information Centers

a. Physical Characteristics - State-of-the-art report or a series of reports, each with a bibliography.

b. Purpose - To review and identify past and current cooperative processing centers, consortia and the like.

c. Intended Audience - Practitioners and users of libraries and information services.

d. Personnel Engaged - Under negotiation.

Determining Cost Effectiveness and Cost Benefits in Libraries and Information Handling Operations

a. Physical Characteristics - State-of-the-art report and bibliography.

b. Purpose - To review, identify and recommend methods of determining cost effectiveness and cost benefits.

c. Intended Audience - Managers of libraries and information centers.

- d. Personnel Engaged - Mr. Donald King, Vice-President, Westat Surveys, Bethesda, Md., with bibliographic support from the ERIC/CLIS staff.
- e. Completion - Second Quarter; 1971

The Emergent Role of the Public Library

- a. Physical Characteristics - State-of-the-art report and bibliography.
- b. Purpose - The role of the public library as a community information center differs radically from the passive repository that is still the norm across the country. The purposes of this report are:
 - 1. To gain acceptance by librarians and the public for library materials in forms other than hardback books.
 - 2. To help change the attitudes of librarians and library schools.
 - 3. To assist in the communication within the library and with the library's public.
 - 4. To allow better and more meaningful participation in decision-making by staff members.
- c. Intended Audience - All librarians and users of library services.
- d. Personnel Engaged - Under negotiation.

ERIC Library and Information Science Document Resumes

- a. Physical Characteristics - An abstract publication, complete with subject, author and institution indexes, of all documents processed by ERIC/CLIS and those documents processed by other ERIC Clearinghouses applicable to the library and information sciences from the beginning of the ERIC system to December, 1970. It will be updated on a quarterly, bi-annual or annual basis.
- b. Purpose - To provide direct access to the fugitive literature pertinent to the library and information science fields and to eliminate the need to go through dozens of RIE issues for information in these areas. This project came about in direct response to numerous requests from library schools for a separate publication of all documents in the ERIC system in the LI area. It is believed that such a publication will also be of value to industry and government because of the structure, organization and operations of libraries and information centers as related to the field of education.
- c. Intended Audience - All librarians and information scientists in private, public and university environments.
- d. Personnel Engaged - Under negotiation.

ERIC Products 1967-1971

- a. Physical Characteristics - ERIC Products 1967-1971 will contain the bibliographic information and brief abstracts of all information analysis products of the ERIC Clearinghouses from 1967 to June 1971. Information concerning the availability and format of each product, e.g. review paper, state-of-the-art report, bibliography, etc., will be included as well as a statistical summary of the type and total number of publications by each Clearinghouse. In addition, an

author and subject index, by ERIC Thesaurus terms will be included.

b. Purpose - To provide a single, unified reference source for the identification of information analysis publications of the ERIC Clearinghouses.

c. Intended Audience - General ERIC, ERIC Clearinghouses, users of the ERIC system and the total education community.

d. Personnel Engaged - Mary Fisher and J.I. Smith, ERIC/CLIS

e. Completion - Third Quarter, 1971

Identifying and Reporting Cost Data in Information Handling

a. Physical Characteristics - State-of-the-art report and bibliography.

b. Purpose - To review, identify and recommend procedures for reporting cost data.

c. Intended Audience - Management of libraries and information centers.

d. Personnel Engaged - Mr. Doug Price, Deputy Director, ERIC Processing and Reference Facility, Leasco, Bethesda, Md. with bibliographic support from the ERIC/CLIS staff.

e. Completion - Third Quarter, 1971.

Information Science Courses in Universities

a. Physical Characteristics - A critical analysis of the courses in information science with a view toward synthesizing what is being taught, and what could (or perhaps should) be taught in an information science program. This publication will be based on more than course descriptions in college catalogs.

b. Purpose - To provide a tool to educators presently engaged in information science curricula and those planning to offer such courses.

c. Intended Audience - Educators in the library and information sciences.

d. Personnel Engaged - Not yet identified.

Innovative Teaching Methods in Information Science

a. Physical Characteristics - A state-of-the-art report and bibliography.

b. Purpose - To review and identify past and present procedures and evaluate successes and failures; to provide a critical analysis with suggestions and/or approaches that can be used.

c. Intended Audience - Educators in library and information sciences.

d. Personnel Engaged - Not yet identified.

Library Automation - Public Services

- a. Physical Characteristics - State-of-the-art report or a series of reports, each with a bibliography.
- b. Purpose - To include the design, development of past and present systems for circulation control, reserve book processing, reference and retrieval, and innovative services such as SDI, current awareness tools, KWIC indices, and the use of other available data bases, e.g., ERIC, Chemical Abstracts, etc.
- c. Intended Audience - Practitioners and users of libraries and information services.
- d. Personnel Engaged - Under negotiation.

Library Automation - Systems Analysis in Libraries: Methods and Objectives

- a. Physical Characteristics - A state-of-the-art report and bibliography.
- b. Purpose - To help solve one of the very basic problems in library automation: library procedures, their description, analysis and translation to automated methods. Libraries have acquired enormous collections of materials over a period of time and built numerous and large files to control these materials. Tradition of what librarians do and how they do it has greatly complicated and retarded the progress of library automation, however, these factors cannot be ignored in the implementation of library automation techniques.
- c. Intended Audience - The entire library and information science communities.
- d. Personnel Engaged - Under negotiation.

Library Automation - Technical Service Systems

- a. Physical Characteristics - State-of-the-art report or a series of reports, each with a bibliography.
- b. Purpose - To include such topics as acquisitions control systems, catalog processing, selection activities, authority files and the use of the MARC data.
- c. Intended Audience - The entire library and information science communities.
- d. Personnel Engaged - Under negotiation.

Library and Reference Facilities in the Area of the District of Columbia. Eight Edition.

- a. Physical Characteristics - A collection of the libraries that offer services to the public and those possessing unique or specialized collections in the Washington, D.C. area. This collection will contain the name of the library, the address, telephone number, librarian, regulations, and resources of each library. A complete

index will also be provided. There are approximately 250 libraries in the area and the total number of pages is anticipated to be 225.

b. Purpose - To provide ready reference to all libraries in the Washington, D.C. area.

c. Intended Audience - Because of the large number of government libraries and libraries of various organizations which have headquarters in the Washington, D.C. area this book will be of use to university, public and special libraries throughout the country. It is also anticipated that many foreign libraries will be interested in this publication.

d. Personnel Engaged - This publication is a result of a cooperative arrangement with the following organizations: ASIS, Federal Library Committee, the D.C. Chapter of the Special Libraries Association, the Library Division of the Metropolitan Area Council on Government, the D.C. Library Association Chapter of the American Library Association and the Biological Sciences Communications Project of the George Washington University. Miss Mildred Benton of GW/BSCP is the project leader.

e. Completion - Second Quarter, 1971.

Library Services to Specialized Groups: The American Indians

a. Physical Characteristics - State-of-the-art report and bibliography.

b. Purpose - To review and identify major activities, problem areas, current status and provide references to the literature.

c. Intended Audience - Public, private and university libraries.

d. Personnel Engaged - Not identified.

Library Services to Specialized Groups: The Appalachian Disadvantaged

a. Physical Characteristics - A state-of-the-art report and bibliography on past and present library service programs to the Appalachian disadvantaged.

b. Purpose - To identify and briefly describe literature on the topic.

c. Intended Audience - Educators and practitioners in the field.

d. Personnel Engaged - Mrs. Mayrèlee Newman, Associate Professor, Library Science Dept., Appalachian State Univ., Boone, N.C., along with bibliographic support by the ERIC/CLIS staff.

e. Completion - Third Quarter, 1971.

Library Services to Specialized Groups: The Black Urban Dweller

a. Physical Characteristics - A state-of-the-art survey and bibliography of past and present library programs.

b. Purpose - To identify major activities, problem areas and current thinking on the subject and provide references to the basic literature.

- c. Intended Audience - Public and university librarians, especially administrators.
- d. Personnel Engaged - Professor Annie Reide, Bowie State College, Bowie, Md., with bibliographic support from the ERIC/CLIS staff.
- e. Completion - Second Quarter, 1971.

Library Services to Specialized Groups: The Mexican-Americans

- a. Physical Characteristics - A literature survey and bibliography.
- b. Purpose - To review and identify past and present programs as revealed through the literature.
- c. Intended Audience - Library administrators and specialists.
- d. Personnel Engaged - Considering Mr. C. Edwin Dowlin, Librarian, New Mexico State Library, Santa Fe, N.M. and Dr. Horacio Ulbarri, Professor of Education, Southern Methodist University, Dallas, Tex.

Library-Information Services in the Urban Scene

- a. Physical Characteristics - A state-of-the-art survey and bibliography on library and information service activities to the urban community.
- b. Purpose - To review past and current programs on the topic.
- c. Intended Audience - Public libraries, university libraries and information centers.
- d. Personnel Engaged - Dr. Vivian Sessions, Director, Center for the Advancement of Library-Information Science, City University of New York, N.Y., N.Y., and bibliographic support from the ERIC/CLIS staff.
- e. Completion - Second Quarter, 1971.

Library Technicians

- a. Physical Characteristics - A state-of-the-art report and bibliography.
- b. Purpose - To review the literature and discuss the past and current status of library technicians in the library operations.
- c. Intended Audience - All librarians.
- d. Personnel Engaged - Miss Pauline Lybeck, Library Consultant, New York, N.Y., with bibliographic support from the ERIC/CLIS staff.
- e. Completion - Second Quarter, 1971.

Measuring Library Use

- a. Physical Characteristics - A literature survey and bibliography.
- b. Purpose - To provide a means of measuring library users, their behavior inside and outside the library and provide a discussion of applicable research methodology, picking out of broad library surveys, the part that has to do with the user and user groups.

- c. Intended Audience - Public, special and university library personnel.
- d. Personnel Engaged - Mrs. Brigitte Kenney, Assistant Professor, Graduate School of Library Science, Drexel University, Philadelphia, Pa., with bibliographic support from the ERIC/CLIS staff.
- e. Completion - Second Quarter, 1971.

Proceedings from the COSATI Meeting on Information Analysis Centers

- a. Physical Characteristics - A publication consisting of the papers to be presented at the COSATI meeting on IAC's in May, 1971.
- b. Purpose - To disseminate the results of the above meeting to managers and operators of IAC's, personnel of the commercial firms engaged in cooperative ventures with IAC's, and users of the services and products of IAC's.
- c. Intended Audience - Same as listed in b. above.
- d. Personnel Engaged - Herbert R. Koller and J.I. Smith, ERIC/CLIS.
- e. Completion - Third Quarter, 1971.

Research Activities in Library Services to Young Adults

- a. Physical Characteristics - State-of-the-art report and bibliography.
- b. Purpose - To review the research-related activities to young adults services in libraries from post-1950 to the present covering the following areas:
 - 1. Research into services to the young adult
 - (a) Library services
 - (b) Educational services
 - (c) Community services
 - 2. Research into characteristics of the young adult
 - (a) Reading ability, study habits, etc.
 - (b) Young adult informational needs
- c. Intended Audience - All librarians and administrators involved in young adult services.
- d. Personnel Engaged - Dr. James Liesener, Acting Dean, University of Maryland, Graduate School of Library and Information Services, with bibliographic support from the ERIC/CLIS staff.

The Role of the Library in Support of Black Studies Programs

- a. Physical Characteristics - A state-of-the-art report and bibliography.
- b. Purpose - To survey past and present programs and developments.
- c. Intended Audience - Library management and reference personnel.
- d. Personnel Engaged - Mr. John B. Mack, III, Black Studies Director, Chicago City College, Chicago, Ill. (still in negotiation stage).
- e. Completion - Second Quarter; 1971.

The Status of Library and Information Networks

- a. Physical Characteristics - A state-of-the-art survey and bibliography.
- b. Purpose - To review past and current library and information networks; to identify various problem areas; and to make recommendations regarding ways and means for more successful networks.
- c. Intended Audience - Librarians, information scientists and communications experts.
- d. Personnel Engaged - Presently negotiating with Miss Maryann Duggan, University of Texas, Dallas, Texas.

11. Newsletters, Bulletins and Brochures

Initial Preparations

- Selection of printer
- Establish format
- Establish distribution mechanisms

General Procedures

- News gathering
- Abstract selection
- Composition
- Proofreading and editing
- Printing
- Distribution

Products (See Appendix)

Newsletter

- Distribution - 9,500 each issue
- Title - ERIC/CLIS NEWS
 - Issue No. 1, June 1970
 - Issue No. 2, December 1970

Bulletins

- Distribution - over 500 journals in the library and information sciences
- Four news releases have been published

Brochures

- Distribution - 2,500 total
- Titles -
 - The ERIC Clearinghouse on Library and Information Sciences as a Service Function
 - PSST, Wanna Know All About ERIC?
 - ASIS Conventioneer, ERIC/CLIS Wants a Parley With You

12. Question Answering

Services of ERIC/CLIS
for period 4/1/70-9/30/70

Total Number of Requests: 954

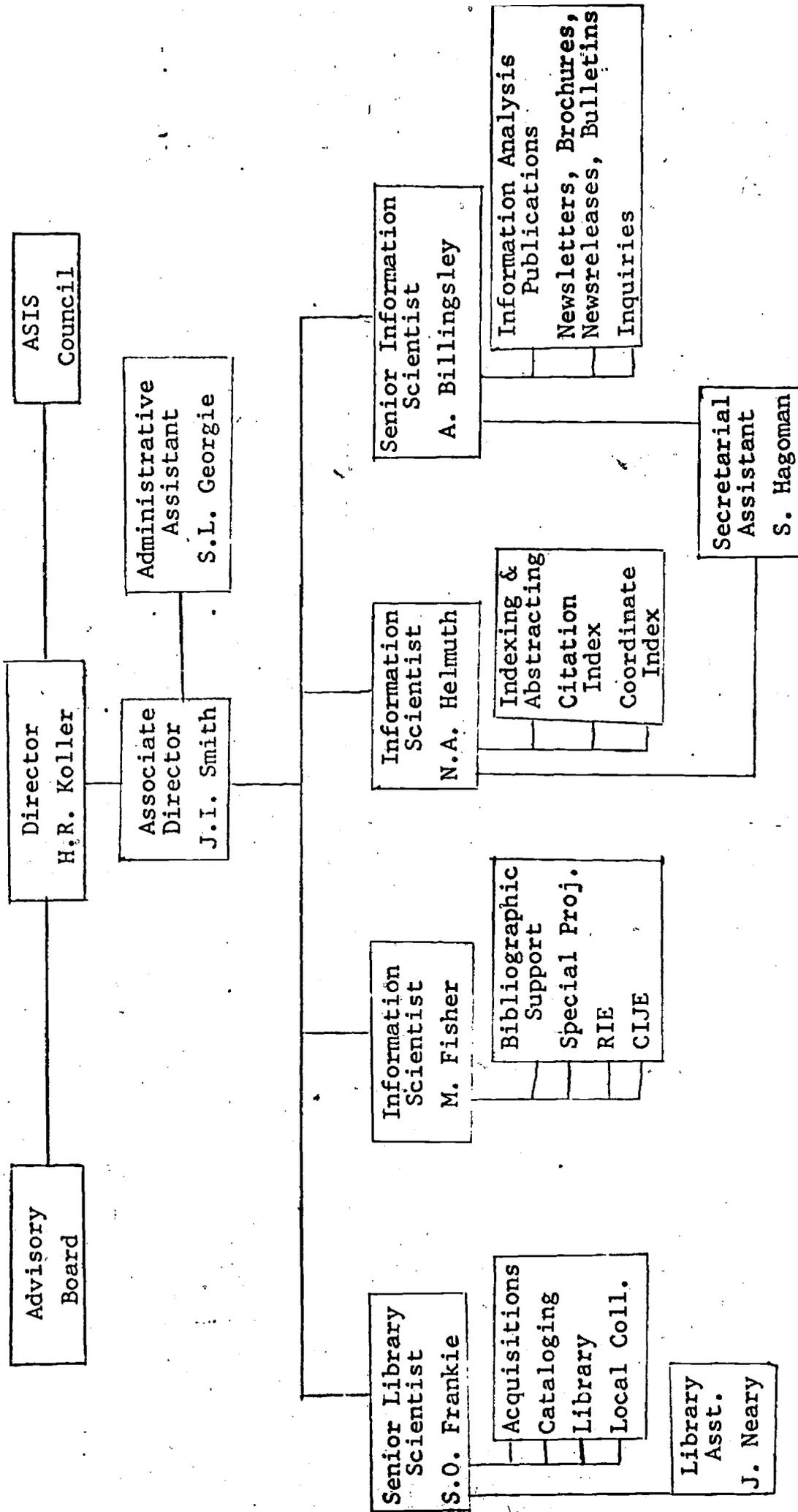
A. Form	1st. Quart.	2nd Quart.	3rd Quart.	TOTAL
Letters	0	315	383	698
Phone	0	30	131	161
Visits	0	20	75	95
				<u>954</u>
B. Type of Requests				
Reference - non subject	0	32	35	67
Reference - subject	0	11	45	56
Spot Bibliographies	0	1	12	13
General Quests. on ERIC/CLIS	0	300	407	707
Other	0	21	90	111
C. Types of User				
Educational Practitioners	0	55	224	279
Decision Makers		34	4	38
R&D Specialists		39	21	60
Information Professional		172	182	354
Professional Organization		21	119	140
Other (Fed. Gov't., Pub. etc.)		44	39	83

TRENDS:

Approximately 30% of our users are educational practitioners.*
Approximately 37% are Information Professionals (including librarians); which is to be expected since both are more sophisticated in ways of obtaining information. Requests being currently received show a need for more substantive replies than previous requests and also indicate a growing awareness of library and information science subjects..

* This compares with the trend (based on figures for three quarters of 1969) of a ratio of less than 1%.

ERIC CLEARINGHOUSE ON LIBRARY AND INFORMATION SCIENCES
Organization Chart



14. Training

Initial Orientation
Establishing Procedures
Formal Staff Meetings
Informal Staff Meetings
On-the-job training for supportive paraprofessional personnel

Professional Reading

Professional Meetings attended include:

Conference on Scientific Information Problems in Research
Conference on Research and Information
COSATI Panel on International Information Activities
ACM Conference
Z39, SC-27 Committee on Geographical Coding Standardization
Panel on Educational Terminology
Conference on Interlibrary Communications & Information Networks
Innovations in Communications Conference
Seventh Annual National Information Retrieval Colloquium
Spring Joint Computer Conference
Eighth Spring System Seminar
Special Libraries Association Meeting
Conference on the Research on the Two-Year College
American Library Association Meeting
American Association of Law Libraries Meeting

Visits to:

LEASCO Facility
EDRS Facility
ERIC Clearinghouse on Teacher Education
ERIC Clearinghouse on Higher Education
ERIC Clearinghouse on Linguistics

15. Advisory Board and Consultants

In order to maximize the role of library and information sciences in the communications process and to be responsive to the requirements of its users, ERIC/CLIS formed an eight-member Advisory Board during the Third Quarter of 1970, which will serve in a consultant capacity to the Clearinghouse.

The Board is composed of leading technical experts in library and information sciences representing government, the private sector, professional societies and special and university libraries. It will provide direction to enable ERIC/CLIS to meet its established goals and objectives, furnish guidance toward effective utilization of resources presently existing within the library and information science communities, and establish an interface for communication among diverse user groups.

The Board members and their affiliations are:

Col. Andrew A. Aines, Chairman, Committee on Scientific and Technical Information, and Technical Assistant to the Director of the Office of Science and Technology (OST), Executive Office of the President, Washington, D.C.

Dr. Michael P. Barnett, Director of Research and Development, the H.W. Wilson Co., Bronx, New York.

Forrest F. Carhart, Jr., Director, Office for Research and Development, American Library Association, Chicago, Illinois.

F. Kurt Cylke, Executive Secretary, Federal Library Committee, Library of Congress, Washington, D.C.

Dr. Ben-Ami Lipetz, Head, Research Department, Yale University Library, New Haven, Connecticut.

John W. Murdock, Manager, Information Systems Section, Department of Social and Management Systems, Battelle Columbus Laboratories, Battelle Memorial Institute, Columbus, Ohio.

Dr. Ann F. Painter, Professor, Graduate School of Library Science, Drexel Institute of Technology, Philadelphia, Pennsylvania.

Dr. Martha Jane Zachert, Associate Professor, School of Library Science, Florida State University, Tallahassee, Florida.

16. Publicity and Public Relations

Exhibits

1. Spring Joint Computer Conference, Atlantic City, New Jersey, May 5-7.
2. Seventh Annual National Information Retrieval Colloquium, Philadelphia, Pa., May 7-8.
3. Special Libraries Association Annual Meeting, Detroit, Michigan, June 7-11.
4. American Library Association Annual Meeting, Detroit, Michigan, June 28-July 4.
5. American Society for Information Science Annual Meeting, Philadelphia, Pa., October 11-15.

DIRECT MAILINGS

1. ERIC/CLIS list - approximately 4,000
2. ASIS - 4,500
3. Library and Information Journals - over 500
4. ALA Chapter Presidents
5. Deans of Library Schools
6. Regional Library Services Program Officers
7. State Librarians
8. SLA Officers
9. Regional Education Laboratories
10. Officers of Professional Associations and Societies

A Partial List of Organizations
on a Continuous Direct Contact Basis

1. American Society for Information Science
2. American Library Association
3. American University
4. California Library Association
5. Council of Planning Librarians
6. Division of Library Programs, OE Bureau of Libraries and Educational Technology
7. Federal Library Committee
8. International Federation for Documentation
9. Drexel University
10. University of Maryland
11. Pratt Institute
12. Wayne State University
13. University of California
14. Special Libraries Association
15. District of Columbia Library Association
16. Catholic University
17. George Washington University
18. Library Journal
19. New York State Division of Library Development
20. National Academy of Sciences
21. Information Industry Association
22. American Federation of Information Processing Societies
23. New York Metropolitan Reference and Research Library Agency (METRO)
24. District of Columbia Chapter of SLA
25. Library of Congress

A Partial List of Meetings Attended by ERIC/CLIS Staff

1. George Washington University, "Legal Protection of Computer Software", H.R. Koller
2. National Bureau of Standards, "Innovations in Communications Conference", H.R. Koller
3. American University, "ERIC/CLIS", J.I. Smith & Alice Billingsley
4. "Panel on Educational Technology", Mary Fisher
5. Spring Joint Computer Conference, H.R. Koller
6. Seventh Annual National Information Retrieval Colloquium, "Social Impact of Information Retrieval", J.I. Smith
7. Office of Education, Division of Library Programs, Regional Library Service Program, S. Frankie & J.I. Smith
8. ASIS local chapter meeting, ERIC/CLIS staff
9. Federal Library Committee, "ERIC/CLIS", H.R. Koller & J.I. Smith
10. American University, "Systems Management in the Seventies", A. Billingsley
11. SLA Annual Meeting, Exhibit, J.I. Smith
12. Appalachian State University, "Research on the Two-Year College", J.I. Smith
13. ALA Annual Meeting, "Panel Workshops and Exhibit on ERIC - ERIC/CLIS", H.R. Koller, J.I. Smith & A. Billingsley
14. American Association of Law Libraries, S. Frankie
15. Office of Education, Division of Library Programs, J.I. Smith and Sue Frankie
16. Gordon Conference, H.R. Koller
17. Joint Center for Political Research, Information Division, J.I. Smith
18. COSATI Panel on International Information Activities, H.R. Koller
19. Pratt Institute, Graduate School of Library and Information Science, "ERIC/CLIS", J.I. Smith
20. ACM, Panel on Classification of Computer Software, H.R. Koller

21. Z-39/SC-27 Subcommittee Meetings, J.I. Smith
22. Southern Ohio Chapter of ASIS, "ERIC/CLIS", J.I. Smith
23. Conference of Library Communications and Information Networks, H.R. Koller and J.I. Smith
24. ASIS Annual Meeting, "Workshops, Exhibit and other meetings, H.R. Koller, J.I. Smith, A. Billingsley, S. Frankie, N. Helmuth and S. Georgie
25. Fall Joint Computer Conference, H.R. Koller

Abstract Agreements

1. ASIS Newsletter - Issued bi-monthly
Circulation - 4,500
2. College and Research Libraries - Issued bi-monthly
Circulation - 16,000
3. FID News Bulletin - Issued monthly
Circulation - 2,500
4. Information Science Abstracts - Issued quarterly
Circulation -
5. Library Literature - Issued quarterly
Circulation - 3,000
6. Library Resources and Technical Services - Issued quarterly
Circulation - 9,000
7. Special Libraries - Issued 10 times per year
Circulation - 16,000

17. Special Projects

Systems Development and Support

Establishing and Maintaining Serial Collection (200 titles)

- Correspondence
- Record Card set-up
- Issues checked in
- Issues routed
- Issues shelved
- Monthly check for renewals, claims, etc.
- Servicing
- Selection & evaluation of additional titles

Establishing and Maintaining Reference Collection

- Orders
- Cataloging
- Servicing
- Maintenance of records
- Shelving
- Selection & evaluation of additional reference materials

Establishing and Maintaining Mailing List

- Categorizing 3,325 names
- Preparing Scriptomatic cards
- Updating information (average increase @ 100 per week)

Establishing and Maintaining Coordinate Indexes for RIE and CIJE

Experimental Projects

Citation Index

General Projects

Ben Ami Lipitz - reference notes

Hierarchical support for the Thesaurus of ERIC Descriptors

Bibliographic support for ARIST

Organizing clearinghouse documents creating controls, indexing etc.

Library and Information Science Citation Index

The Library and Information Science Citation Index (LISCI) will consist of two separate KWIC indexes. One will be the source index which will provide complete bibliographic information and an author and subject index to the main documents published during the current year. It will also include all the ERIC/CLIS collection documents which contain citations.

The second KWIC Index will provide complete bibliographic information and an author and subject index to all the articles cited in the source documents. This index will not be limited by the date or place of the articles' original appearance. Thus, this citation index will give ready access to the most important--most cited--articles produced regardless of when or where they were published.

Uses - ERIC/CLIS will use the LISCI to provide bibliographic support for our special papers; to determine the subjects of current interest to the library and information science community; and to identify the authors most frequently cited. LISCI will also be a good public relations tool whereby we can inform frequently cited authors of the number of times their articles were cited, by whom and where.

At the present, there is no such index aimed toward the library and information science community.

ERIC

**CLEARINGHOUSE ON LIBRARY
AND INFORMATION SCIENCES**

OPERATED FOR THE U.S. OFFICE OF EDUCATION BY THE AMERICAN SOCIETY FOR INFORMATION SCIENCE
1140 CONNECTICUT AVENUE, N.W., SUITE 804, WASHINGTON, D.C. 20036 TELEPHONE (202) 658-3778

HERBERT R. KOLLER *Director*

J. I. SMITH *Associate Director*

**ERIC CLEARINGHOUSE ON
LIBRARY AND INFORMATION SCIENCES
AMERICAN SOCIETY FOR INFORMATION SCIENCE
SUMMARY OF ACTIVITIES
MARCH 1, 1971 TO FEBRUARY 29, 1972**

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A. DOCUMENT PROCESSING

1. Acquisitions

In the past year we have tried to develop our Acquisitions Program in several areas:

- a. We have established "standing order arrangements" with over thirty agencies who now send us on a continuing basis documents within our scope of interest. Among the agencies sending us materials are:

American Library Association
Association of Research Libraries
British Columbia Library Association
California University Institute for Library Research
Canadian Library Association
Denver University Center for Communications and Information Research
EDUCOM (Interuniversity Communications Council, Inc.)
Federal Library Committee
Five Associated University Libraries
International Federation for Documentation
International Federation of Library Association
Israel Society of Special Libraries & Information Centers
Kent State University School of Library Science
Pittsburgh University Library School
Scottish Library Association

It should be noted that 49% of the 2093 items received in the past year were unsolicited items.

- b. We have expanded our international contacts within the past year, and will continue to do so. While we process only English language materials, 17% of our input to RIE issues for July--November were non-U. S. publications. In addition to the international agencies noted above ERIC/GLIS has recently been designated an Associate Member of the International Federation of Library Associations. In addition, we will work with the American Society for Information Science Ad Hoc Committee on International

Relations which should provide additional opportunities for ERIC/CLIS to develop contacts abroad.

- c. We will draw on the expertise and existing relationships of the various Special Interest Groups of ASIS with other professional groups to facilitate expanded coverage of acquisitions. Two specific examples of coordination of efforts already underway provide that selected papers prepared for presentation at the ASIS Convention will be processed by ERIC/CLIS. In addition, a "Request for Papers" solicitation was sent out to obtain materials for authors of chapters for the Annual Review of Information Science and Technology. The Request asked that a copy of materials sent be forwarded to ERIC/CLIS.
- d. We have worked out an arrangement with selected library journals noted below, whereby authors of selected manuscripts not accepted for publication by the journal are told of ERIC/CLIS' interest in reviewing the manuscript. The journals who are cooperating with us are:

Drexel Library Quarterly
School Libraries
College & Research Libraries
Library Quarterly
Wilson Library Bulletin

2. Research in Education

We process approximately 60 titles per month for RIE. We have established criteria for selecting materials for announcement. An analysis of our input for the year shows that 90% of the titles announced were processed at level 1 or 2. Of the total announced 77% were published in 1970 or 1971. As noted elsewhere in this report, 17% of the titles announced were published outside of the U. S.

3. Current Index to Journals in Education

Acting in response to the recommendations of our Advisory Committee and our user community, we have expanded the list of journals we index regularly for CIJE. Beginning in January 1972 our coverage will include:

Journals Indexed for CIJE

1. American Libraries
2. College and Research Libraries
3. Drexel Library Quarterly
4. Information Scientist
5. Information Storage and Retrieval
6. International Library Review
7. Journal of Chemical Documentation
8. Journal of Documentation
9. Journal of Education for Librarianship
10. Journal of Librarianship
11. Journal of Library Automation
12. Journal of the American Society for Information Science
13. Library College Journal
14. Library Journal
15. Library Quarterly
16. Library Resources and Technical Services
17. Library Trends
18. RQ
19. School Libraries
20. School Library Journal
21. Special Libraries
22. Unesco Bulletin for Libraries
23. Wilson Library Journal

4. Local Files

There are several collections of materials identified in this category:

1. Documents accessioned and cataloged for the LI Collection. These are titles not processed for RIE because of age, copyright, relevancy, etc. 651 titles have been processed.
2. Titles cataloged for the Reference Collection, including various directories, handbooks, dictionaries, etc. 427 titles have been processed.
3. Vertical file material, including various catalogs, brochures, program descriptions, etc. Approximately 300 items have been processed.

In addition, we receive regularly issues of 296 serial publications, including journals and newsletters pertaining to library and information science topics. All of these are scanned regularly to identify materials to be acquisitioned, and are processed for our library.

5.	<u>Document Inventory</u>	
1.	Documents received	2093
	a. Unsolicited	1036
	b. Solicited	1057
	Rejected or Transferred	18
	Total retained	2075
	For RIE	697
	For local files	1378
2.	Document Processing	
	a. Submitted for RIE	697
	b. Total processed for local files	1065
	Complete (Abstracted and Indexed)	0
	Limited (Indexed only)	0
	Other (Specify) Cataloged only	1065
3.	Journal Inventory	
	Number of articles indexed	663

B. Information Analysis Products

1. Products Completed During FY '71

At the end of this contract period we will have issued 19 information analysis products, of which all but three have been completed. Manuscripts for those three are expected by the 1st of January.

They are, as follows:

(a.) Extensive Papers

- (1) "Abstracting and Indexing Services: A State-of-the-art Report and Extensive Bibliography" by Stella Keenan (manuscript expected January 1)
- (2) "Analysis and Bibliography of Basic Textbooks in Information Science" by Jack Belzer (manuscript expected January 1)
- (3) "Black Academic Libraries--State of Affairs and a Selected Annotated Bibliography of Black Academe and Its Libraries" by Casper Jordan (camera-ready copy prepared)
- (4) "The Marketing of Information Analysis Center Products and Services" by Walter Veazie & Thomas Connolly
- (5) "The Role of the Library in Support of Black Studies" by John Mack (manuscript expected January 1)

(6) "The Use of Extracts in Information Services" by Nancy Helmuth (to appear in the Nov.-Dec. issue of the Journal of the American Society for Information Science)

(b.) Extensive Bibliographies

(7) "Audiovisual Materials in Support of Information Science Curricula: An Annotated Listing with Subject Index" by Irving Klempner

(8) "Bibliography on Library Automation" by Alice Billingsley (to be published in American Libraries)

(9) "Bibliography on Public Libraries" by Anne Finnan

(10) "ERIC Products, 1970-1971: An Annotated Bibliography of Information Analysis Publications of the ERIC Clearinghouses, July 1970 through June 1971" by Mary McCord

(11) "ERIC/CLIS Micro Library" by ERIC/CLIS staff (to be issued around first of the year by CCM)

(c.) Other Substantive Products: Directories

(12) "Directory of Education Programs in Information Science" by Lorna Wilkie (published by American Society for Information Science)

- (13) "Library and Reference Facilities in the Area of the District of Columbia" (8th ed.) by Mildred Benton (published by Joint Venture)

(d.) Other Substantive Products: Proceedings

- (14) "Proceedings of the Federal Library Committee Meetings, December 16, 1970 & April 28, 1971 on Implications to the Federal Library Community of the AIRLIE Conference on Interlibrary Networks, September 28--October 2, 1970" by Staff of Federal Library Committee and ERIC Clearinghouse on Library and Information Sciences
- (15) "Proceedings of the Forum on Management Centers" edited by William Smith (at the printers)
- (16) "Proceedings of the Second Conference on Federal Information Resources, Washington, D.C., March 30--31, 1971" edited by Robert Durkin (published with ERIC/CLIS - Minnesota - funds)

(e.) Other Substantive Products: General

- (17) "Announcement of RIE Documents (abstracts) in Government Reports Topical Announcements" by National Technical Information Service staff (to start in January)

(18) "Index to the Journal of the American Society for Information Science" compiled by Nancy Helmuth (to appear in the Nov.-Dec. issue of JASIS)

(19) "Information Center Profile: ERIC/CLIS" by Suzanne Frankie (to appear in Information)

2. Products in Process at the End of FY '71

The following 15 information analysis products, initiated in FY '71, are expected to be completed in FY '72:

(a.) Extensive Papers

(1) "Bibliographic Standards and Control" by Phoebe Hayes -- 35% of completion

(2) "Continuing Education for Librarians" by Elizabeth Stone -
- 30% of completion

(3) "Cost Benefits Analysis in Libraries" by Norman Crum --
no estimate

(4) "Determining Cost Effectiveness and Cost Benefits in Libraries and Information Handling Operations" by Donald King -- 65% of completion

- (5) "Identifying and Reporting Cost Data" by Joseph Coyne -- 50% of completion
- (6) "Innovative Information Services in Libraries" by Richard Dougherty --
- 25% of completion
- (7) "Library Services to the Urban Community" by Vivian Sessions --
40% of completion
- (8) "Library Technicians" by Pauline Lybeck -- 50% of completion
- (9) "Measuring Library Use" by
Brigitte Kenney -- 40% of completion
- (10) "Media Services in the Library"
by Jody Haberland (?) -- no
estimate of completion
- (11) "Microform Technology in
Libraries and Information
Centers" by Arthur Hinkley --
75% of completion
- (12) "Origins and Development of
the Public Library in the
United States" by Michael
Harris -- 30% of completion
- (13) "Planning in Library Education"
by Martha Boaz -- 1st edit

(14) "Research Activities in Library Services to Young Adults" by James Liesener -- 50% of completion

(b.) Other Substantive Products: General

(15) "Available Computer Software Programs" compiled by Albert Warheit -- 25% of completion

3. Product Possibilities for FY '72

(a.) Extensive Papers

(1) "Automation in Educational Media Centers" by Jessica Harris

(2) "Conversion and Use of Machine-Readable Data Bases" by Marvin Gechman

(3) "Costs of Library and Information Service" by John Wilson, Jr.

(4) "Document Delivery: A State-of-the-art Report"

(5) "Document Description and Representation" by Phyllis Richmond

(6) "Document Retrieval and Dissemination Systems" by Ted Brandhorst & Philip Eckert

(7) "Effecting Change in Library Education" by Allan Hershfield

(8) "File Organization, Maintenance, and Search"

by Noah Prywes & Diane Smith

- (9) "Information Analysis in Education"
by Joshua Smith
- (10) "Information Needs and Uses" by William
Garvey & Nan Lin
- (11) "Information System Applications in the
Administration of Justice" by Alfred
Blumstein
- (12) "Information System Applications in the
Behavioral Sciences" by Frieda Libaw
- (13) "Library and Information Center Manage-
ment" by Ferdinand Leimkuhler & Alice
Billingsley
- (14) "Library and Information Networks" by
Edwin Olson, Russel Shank & Harold Olsen
- (15) "Library Automation" by Susan Martin
- (16) "Library Services to Juvenile Delin-
quents" by John Martin
- (17) "Present Satus of Research in the Field
of Library Science" by Ernie DeProspero &
Ken Beasley
- (18) "Research Papers on Special Libraries"
- (19) "Survey of Library Science Journals
that Publish Library Research" by Jim
Sodt or Bill McGrath

- (20) "Survey to Determine the Needs of Consumers of Research" by Lee Finks & Ruth Katz
- (21) "The User Interface in Interactive Systems" by John Bennett
- (22) "Video Technology" by Richard Kletter

(b.) Extensive Bibliographies

- (23) "Audiovisual Materials in Support of Library Science Curricula
- (24) "Bibliography on Library Cooperation" by Hal Schell
- (25) "ERIC Products, 1971-1972" by Mary McCord

4. Other Identified Product Possibilities

(a.) Extensive Papers

- (1) "Automation of Library Technical Processing"
- (2) "Guide to Library Automation"
- (3) "Intellectual Freedom"
- (4) "Libraries in Support of Junior Colleges"
- (5) "Library Career Development"
- (6) "Program Planning and Budgeting Systems in Libraries and Information Centers"

- (7) "Reading Related to Libraries"
- (8) "Special Libraries: How to Organize"
- (9) "Tele-communications"
- (10) "Update of the Survey of Scientific-Technical Tape Services"
- (11) "Use of Libraries in Library and Information Science Education" by Russell Shank
- (12) "Use of Tele-communications in Medical Services" by Kjell Samuelson

(b.) Short Papers

- (13) "Analysis of Users of Black Academic Libraries" by Jean Anne South

(c.) Extensive Bibliographies

- (14) "Bibliography of Textbooks on Black Studies"
- (15) "Bibliography on Library Services to Children" by Priscilla Moulton
- (16) "Bibliography on Reprography; Update"
- (17) "Bibliography on the Evaluation of Information Systems" by Belver Griffith

(d.) Mini-proposals

- (18) "Library Services to Specialized Groups:
11 papers

- # "American Indians" by Janet Naumer
- # "Appalachian Disadvantaged" by Mayrelee Newman
- # "Inner-city Communities" by Dan Sillers
- # "The Mentally Handicapped" by Geraldine Matthews
- # "Mexican Americans" by William Farrington
- # "Patients in Institutions"
- # "Physically Handicapped" by Robert Bellinger
- # "Prisoners"
- # "Programs in Support of Literacy Education" by Sara Fenwick
- # "Rural Communities" by Marjorie Fairchild
- # "Support of Drug Information Programs" by Carl Marbury

- (19) "ERIC Products, 1967-1971: A Cumulative Annotated Bibliography of Information Analysis Publications of the ERIC Clearinghouses, July 1967 through 1971"
- (20) "The Educational Resource Linking Agent and Agencies" by Ronald Havelock

(21) "Marketing Perspective Linking ERIC
Information Analysis Outputs to Prac-
ticing Educator Needs" by Jerry Kidd,
Phillip Kuehl, Marcia Bates, & Harold
Olsen

C. SERVICES

1. Requests received by the Clearinghouse during FY 1971

a. Phone	515
b. Letter	1305
c. Visit	135
d. Total	1955

2. Types of requests

a. Reference, nonsubject	311
b. Reference, subject	235
c. Spot bibliographies or literature services	22
d. General questions on ERIC	984
e. Other	403
f. Total	1955

3. General Breakdown of Users

a. Education practitioners	145
b. Education decision makers	2
c. Research and development specialists	76
d. Information professionals and dissemination specialists	1710
e. Professional organizations	7
f. Other	15

D. Promotional Activities

The ERIC/CLIS abstract agreements were expanded to 12 journals. This is an arrangement whereby the editor of each journal selects, from the shipment to RIE, resumes of those documents most pertinent to the readership of that particular journal. The list includes:

1. ASIS Newsletter - issued bi-monthly,
2. College and Research Libraries - issued bi-monthly,
3. FID News Bulletin - issued monthly,
4. FLC Newsletter - issued monthly,
5. Information and Retrieval Library Automation Newsletter - issued monthly,
6. Information Science Abstracts - issued quarterly,
7. LARC Newsletter - 8 issues per year,
8. Library Literature - issued quarterly,
9. Library Resources and Technical Services - issued quarterly,
10. Micrographics, News and Views - issued monthly,
11. School Libraries - issued quarterly,
12. Special Libraries - issued monthly

It is estimated that in the past year ERIC/CLIS materials reached over 80,000 people in the library and information fields through this selective current awareness arrangement.

E. PUBLICITY AND PUBLIC RELATIONS

1. ERIC/CLIS Presentations at Library Schools

Atlanta University
American University
East Texas State University
Columbia University
Pratt Institute
University of Illinois
University of Denver
University of Maryland

2. ERIC Workshops

a. American Library Association
 Pre-Conference Workshop - Dallas
b. Special Libraries Association
c. American Society for Information Science
d. East Texas State University

3. Meetings

American Library Association Convention

 Midwinter

 Annual

Association of Educational Communications and Technology (Annual)

Special Library Association Convention (Annual)

American Society for Information Science Convention (Annual)

Jerusalem Conference on Information Technology

International Federation of Information Processing

American College Public Relations Association

Drug Information Association (Annual)

Baltimore Regional Planning Council, Information Center for
Hearing, Speech, and Disorders of Human Communications

National Information Retrieval Colloquium (Annual)

National Microfilm Association Convention (Annual)

COSATI Forum on Information Analysis Center

National Academy of Sciences - UNISIST Meeting

Bureau of Libraries and Educational Technology briefing

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HERBERT R. KOLLER *Director*

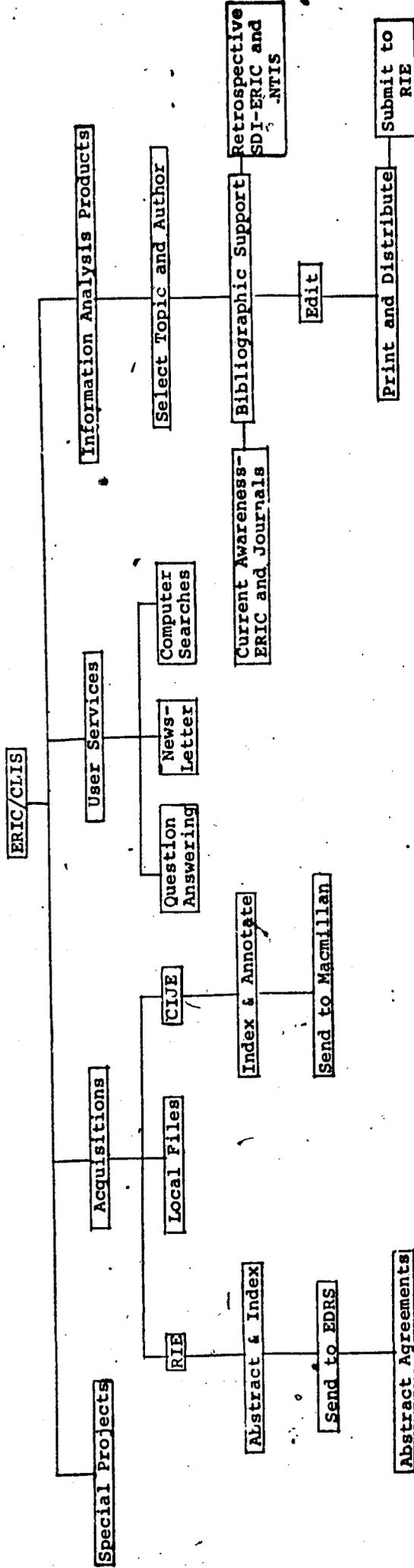
J. I. SMITH *Associate Director*

ERIC CLEARINGHOUSE ON
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AMERICAN SOCIETY FOR INFORMATION SCIENCE
SUMMARY OF ACTIVITIES
MARCH 1, 1972 TO FEBRUARY 28, 1973

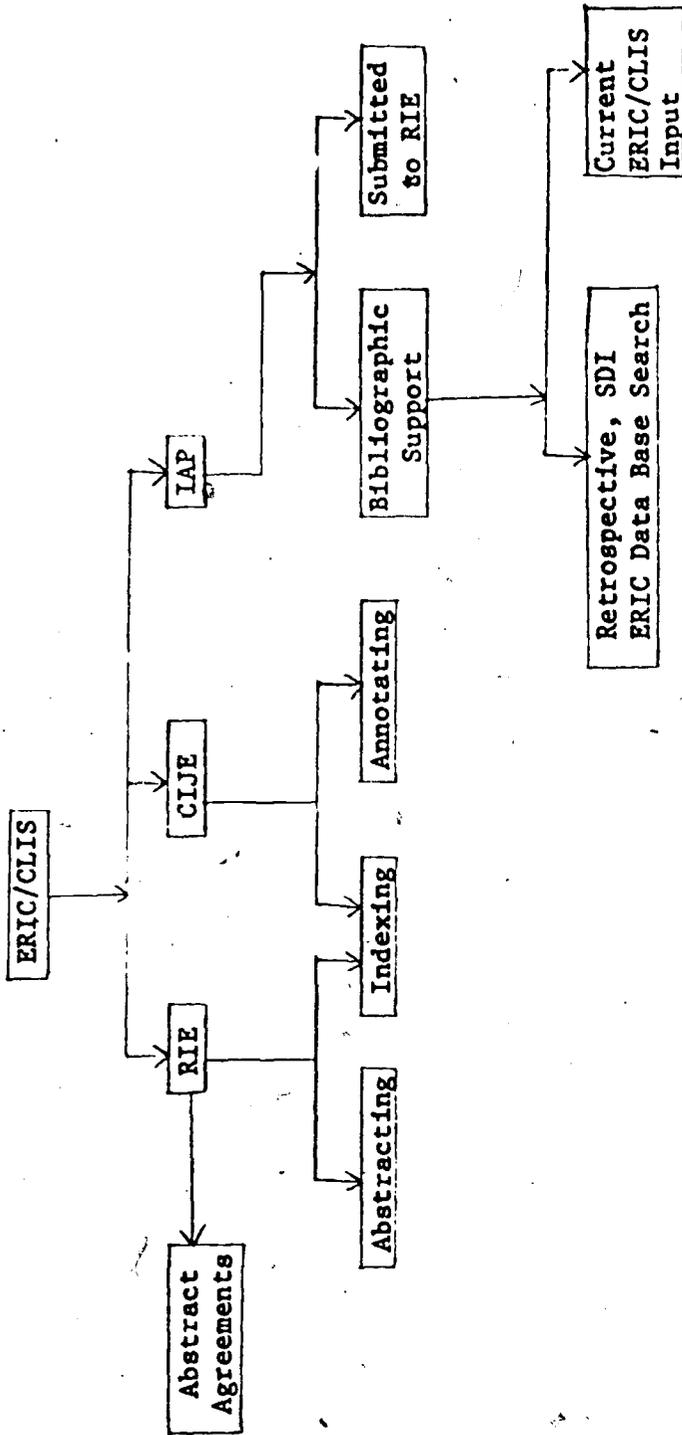
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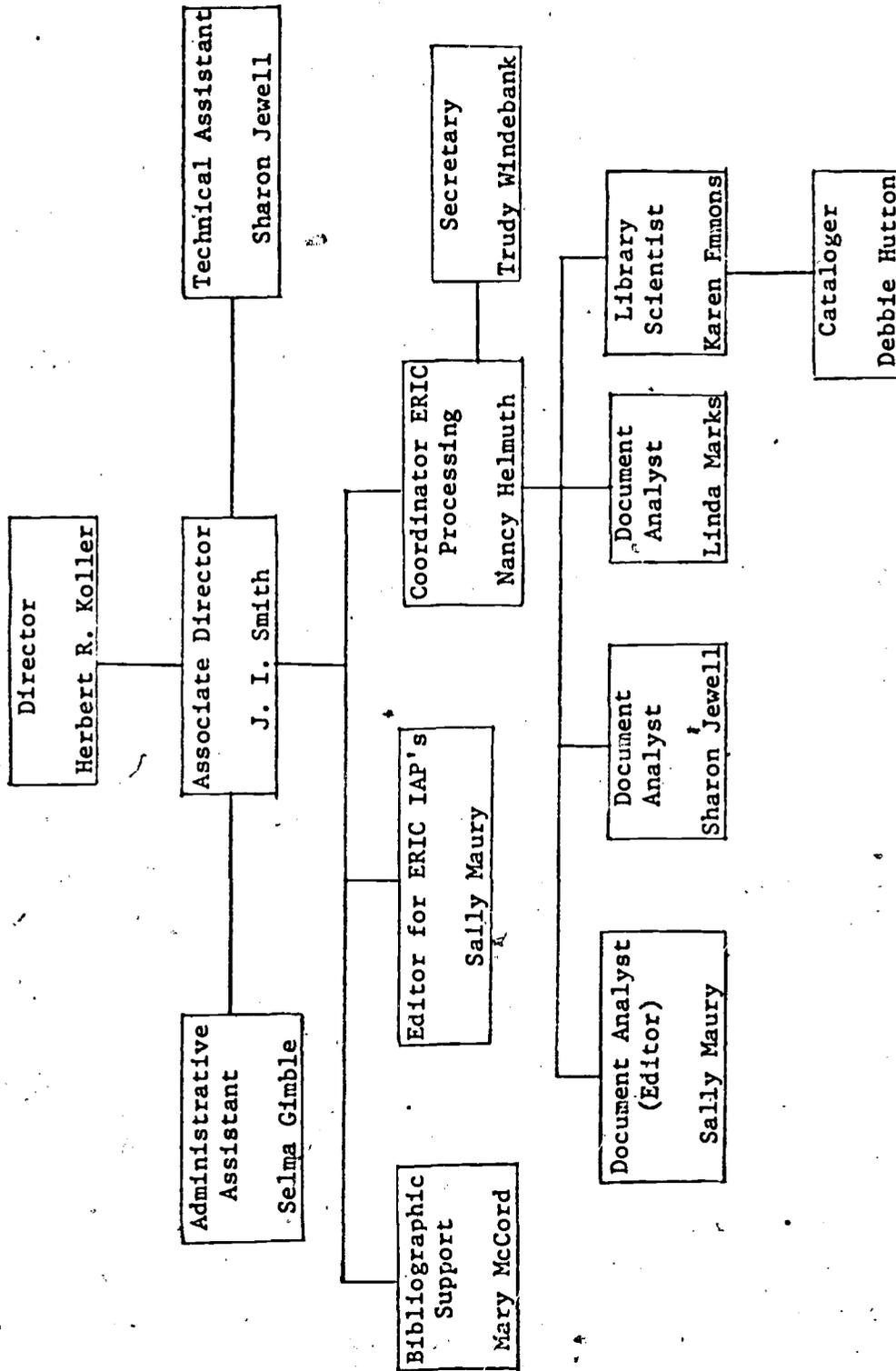
ERIC/CLIS OPERATIONS



OVERALL ERIC/CLIS OPERATIONS



1972 ORGANIZATION CHART FOR ERIC/CLIS



A. DOCUMENT PROCESSING

1. Acquisitions

Serials are a major tool for the identification of RIE-candidate documents. Issues of 305 serial publications, including journals, state periodicals, and newsletters relating to library and information science interests, are received regularly and scanned for possible acquisitions. Maintenance of serial subscriptions required approximately 2/3 of the total acquisitions budget.

The "standing order" arrangements established last year have resulted in a continuing inflow of newsletters, announcements, and candidate documents. Several of these arrangements are proving particularly useful in that they bring a wide range of documents, including an increasing number of foreign materials, to the attention of the Clearinghouse.

Ties with several international organizations were strengthened through the Associate Director's attendance at the 1972 meeting of the International Federation for Documentation (FID) in Budapest.

In addition, the arrangement with several library journals whereby they send in manuscripts not selected for publication has produced several RIE documents.

An increasing number of individual professors and librarians are sending unpublished material to CLIS for processing. Many of these people continue to send documents, and standing order arrangements have evolved out of a mutual satisfaction with the results.

It should be mentioned here that 2/3 of CLIS acquisitions are unsol-
icited.

Continuing ASIS involvement with CLIS, through the Special Interest Groups and--most significantly--production of the Annual Review of Information Science and Technology, enabled the acquisition department to tap a wider range of literature in library and information science than might otherwise have been possible. Expanded ASIS resources, including serials, reference materials, reports, and current awareness channels, are available to CLIS.

2. Research in Education

An analysis of the 600 titles ERIC/CLIS processed for RIE during this year shows that more than 88% of our RIE input was announced at level 1 or 2 and that approximately 77% were published in 1971 or 1972. As a result of our continued international contacts approximately 18% of the titles announced were published outside of the U.S. As part of a continuing effort to enhance the value of our services to our users, ERIC/CLIS now includes the number of references cited in each document as part of the bibliographic information of that document.

3. Current Index to Journals in Education

Articles to be announced in CIJE were selected from the twenty-three journals which are scanned regularly by ERIC/CLIS. Over 90% of the 790 articles indexed for CIJE were also annotated. Here, as in the RIE processing, we also include the number of references cited as part of the information for each article. The journal list reflects name changes for two of the journals covered. (see next page)

Journals Indexed for CIJE

1. American Libraries
2. College and Research Libraries
3. Drexel Library Quarterly
4. Information Scientist
5. Information Storage and Retrieval.
6. International Library Review
7. Journal of Chemical Documentation
8. Journal of Documentation
9. Journal of Education for Librarianship
10. Journal of Librarianship
11. Journal of Library Automation
12. Journal of the American Society for Information Science
13. Learning Today (formerly, Library College Journal)
14. Library Journal
15. Library Quarterly
16. Library Resources and Technical Services
17. Library Trends
18. RQ
19. School Library Journal
20. School Media Quarterly (formerly, School Libraries)
21. Special Libraries
22. Unesco Bulletin for Libraries
23. Wilson Library Bulletin

4. Local Files

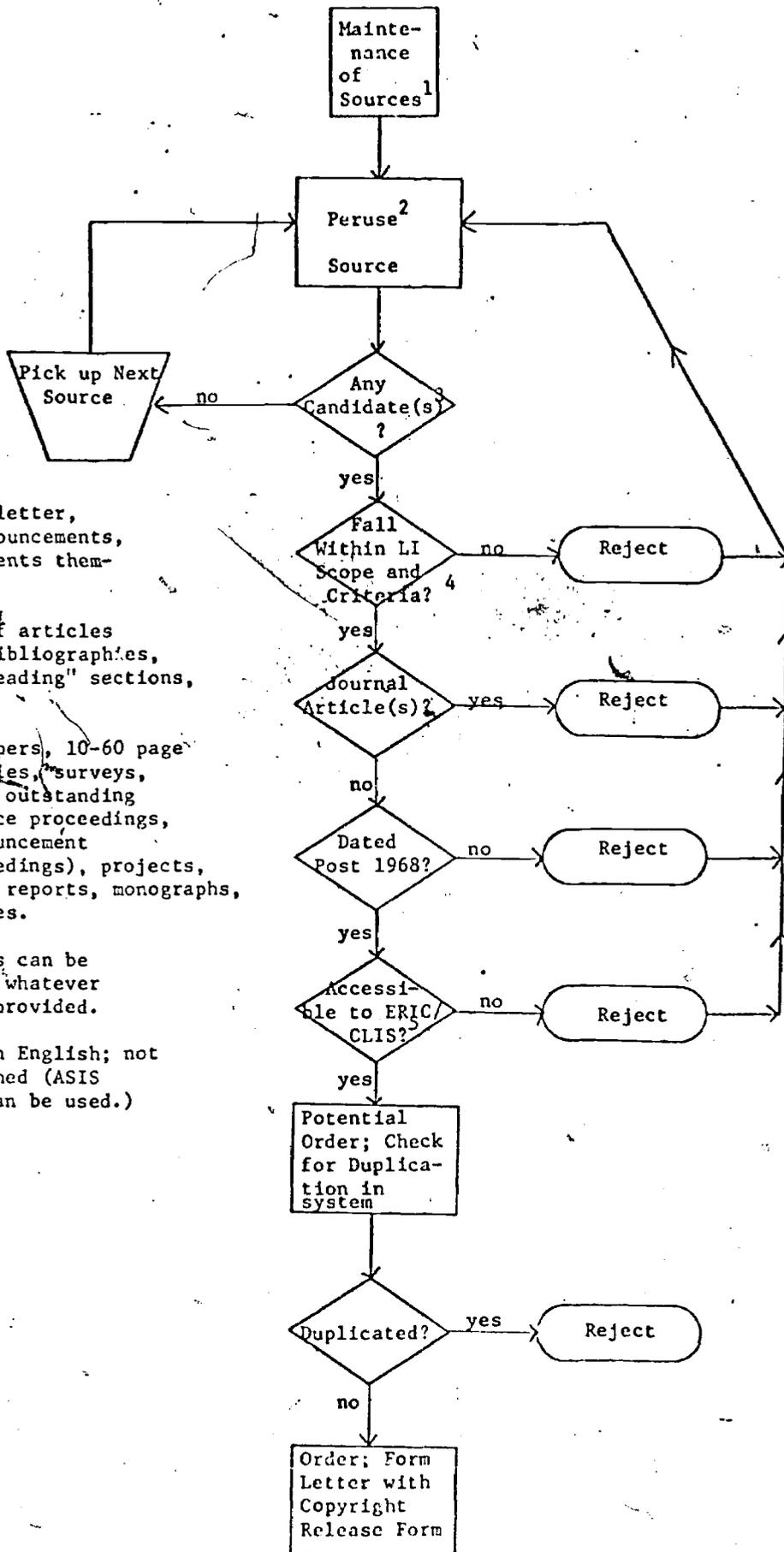
Materials acquired this past year falling within this category are found in the Clearinghouse library, grouped as follows:

- a. Documents accessioned and cataloged for the LI collection but not processed for RIE because of age, copyright, pertinence, etc. (86 documents)
- b. Titles cataloged for the Reference collection, including directories, encyclopedias, thesauri, large bibliographic works, indexes, relevant documents processed by other clearinghouses, etc. A staff-produced coordinate index to the LI documents is an important part of this group of items (25 documents).
- c. Vertical file material, which includes catalogs, brochures, journal reprints, publication announcements, etc. (800 pieces).

A foreign collection, consisting of serials and documents written in languages other than English was started this year (110 documents) and a historical collection, composed of those documents considered to be of retrospective significance in the field (214 documents).

The serial publications mentioned previously in connection with Acquisitions are accessioned for the library and form a major component of the in-house collection. ERIC microfiche round out the local file collection, all of which is accessible to users.

FLOW CHART OF ACQUISITION PROCESS



¹ Journals, newsletter, publication announcements, candidate documents themselves.

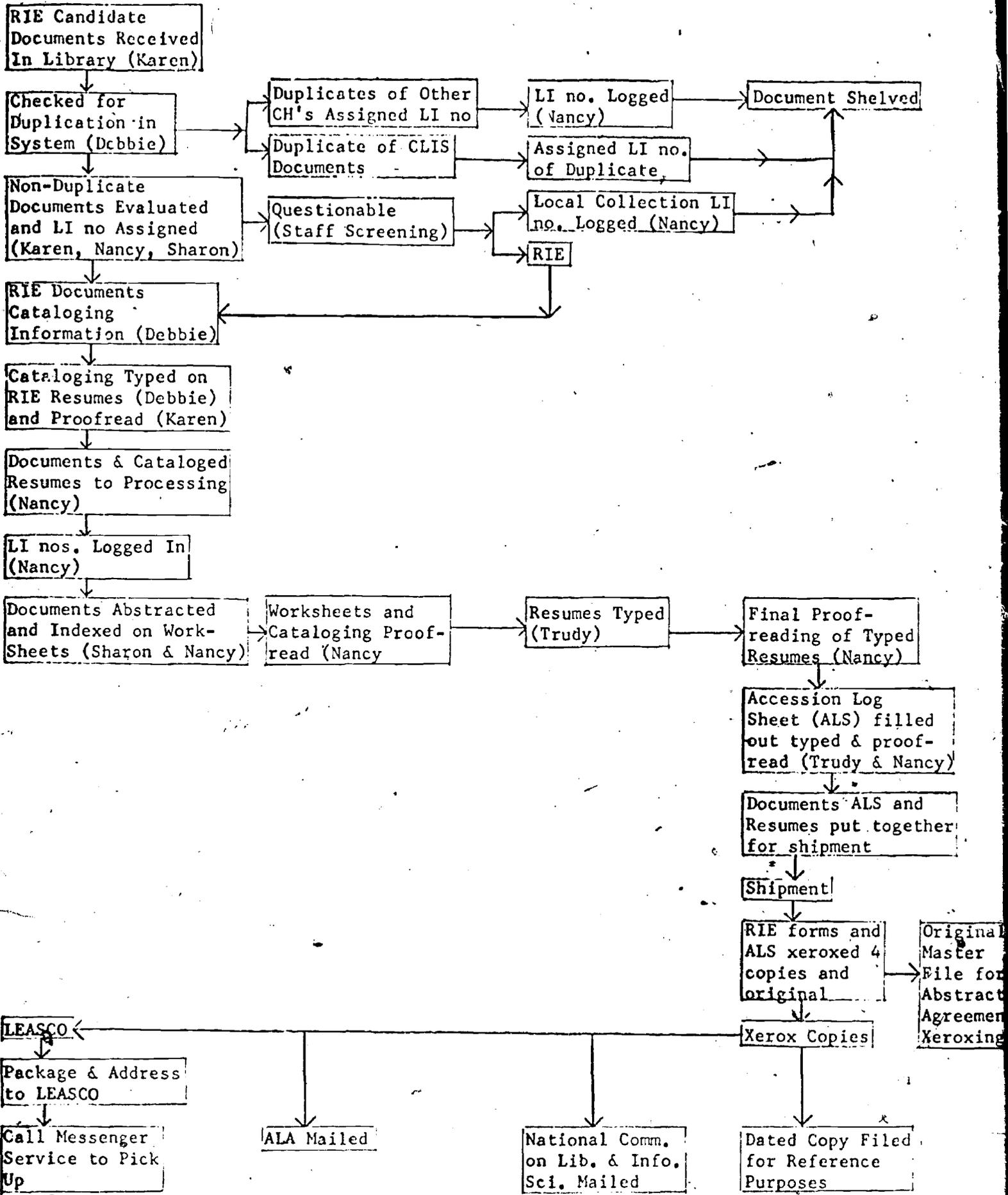
² Check: ends of articles (references), bibliographies, "professional reading" sections, news sections.

³ Unpublished papers, 10-60 page documents, studies, surveys, bibliographies, outstanding books, conference proceedings, conference announcement (possible proceedings), projects, free documents, reports, monographs, manuals, speeches.

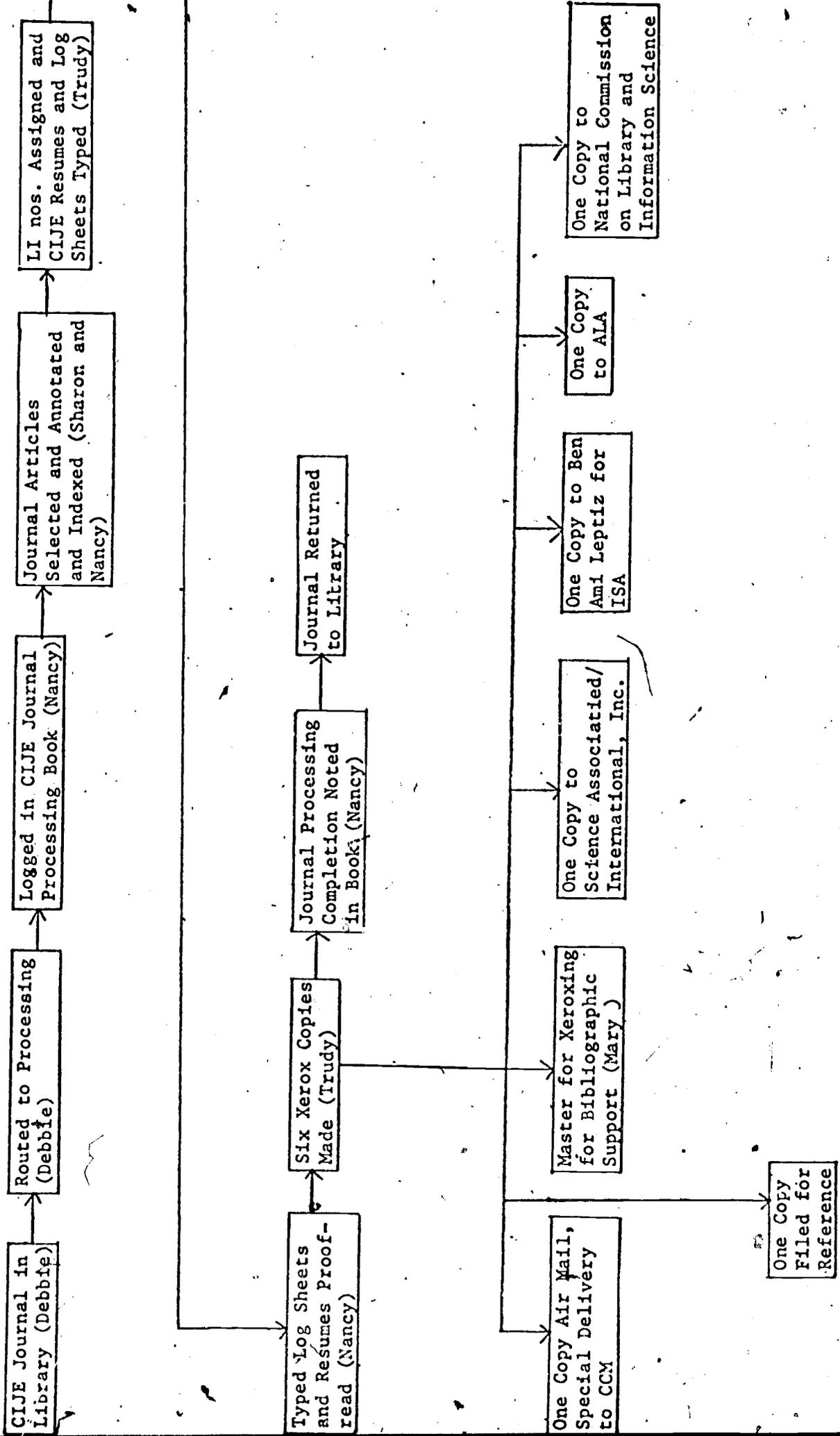
⁴ Insofar as this can be determined from whatever description is provided.

⁵ Inexpensive; in English; not formally published (ASIS review copies can be used.)

FLOW. CHART FOR RIE DOCUMENT PROCESSING



FLOWCHART FOR CIJE PROCESSING



B. Information Analysis Products

A total of forty information analysis products were completed during the contract period March 1, 1972 - February 28, 1973. Of these forty IAPs thirty-one are extensive papers, five are extensive bibliographies, and four are in the category "Other Substantive Products."

Twenty-three of these IAPs appeared as chapters in books or as books themselves published by commercial and/or non-profit organizations. ERIC/CLIS played a substantial role in the publication of five such books:

1. The Annual Review of Information Science and Technology, Volume 7, edited by Dr. Carlos Cuadra, published by ASIS (13 different IAP's published).
2. Cumulative Index to Volumes 1-7 of the Annual Review of Information Science and Technology, published by ASIS.
3. Library and Information Services for Special Groups, published by Science Associates/International, Inc. (7 different IAP's published).
4. ERIC Information Analysis Products 1967-72, edited by J. I. Smith and Mary F. McCord, published by CCM Information Corporation.
5. Library and Information Sciences: An ERIC Bibliography, published by CCM Information Corporation.

The average total cost of these 23 IAPs was approximately \$1,400. A rough estimate of the amounts invested by the publishers combined total over 100,000.

The market for these publications would be somewhere in the neighborhood of 15-20,000 persons. We firmly believe that this kind of investment on the part of the commercial and non-profit sector is testimonial of the high quality products we are producing.

The philosophy in picking topics for IAPs has been, and continues to be, that if we choose topics of current interest and top priority to the library-information science profession, we will have a two-fold advantage. First, experts and top persons in the field can be retained as authors, and secondly,

commercial publishers will recognize the marketability of such products. The advantages of producing IAPs through commercial publishers has been shown by the five books mentioned above. Not only are unit costs to ERIC/CLIS reduced, with the publisher assuming a greater percentage, but also, the audience for the products is greatly expanded, again with no additional cost to the Clearinghouse.

If arrangements with a publisher cannot be made, it is ERIC/CLIS policy to put the IAP into the ERIC system as a level one document. Microfiche copies are then ordered and distributed to our required mailing list. In this way, printing and distribution costs are substantially reduced.

Essentially, the only printing costs incurred during the contract period were to produce two issues of the Clearinghouse newsletter, ERIC/CLIS NEWS.

Bibliographic Support

Monthly bibliographic support is provided to the authors of ERIC/CLIS IAPs as a current awareness service. ERIC/CLIS input to RIE, CIJE, and citations for articles from other selected top journals in the topic areas of interest are included.

In addition, an SDI service is provided in the form of computer searches of the ERIC, NTIS, MEDLINE, DATRIX, and other data bases. ERIC/CLIS staff members negotiate, structure, and initiate (or actually key) the searches, and then send the results to the authors. Searches are updated on a periodic basis until the IAP is completed.

The following is a listing of the 40 completed IAP's by type (extensive paper; extensive bibliography; other substantive report).

EXTENSIVE PAPERS

1. Costs, Budgeting, and Economics of Information Processing, John Wilson.
2. Library and Information Center Management, F. F. Leimkuhler; A. Billingsley.
3. Information Needs and Uses, Nan Lin; W. D. Garvey.
4. Document Description and Representation, Phyllis A. Richmond.
5. Organization of Information, N. S. Prywes; D. P. Smith.
6. The User Interface in Interactive Systems, John L. Bennett.
7. Video Cartridges and Cassettes, R. C. Kletter; H. Hudson.
8. Library Automation, Susan K. Martin.
9. Library and Information Networks, E. E. Olson; R. Shank; H. A. Olsen.
10. Generation and Use of Machine-Readable Bibliographic Data Bases, Marvin Gechman.
11. Document Retrieval and Dissemination Systems, W. T. Brandhorst; P. F. Eckert.
12. Information Systems Applications in the Humanities, J. Raben; R. L. Widmann.
13. Information Systems Applications in the Criminal Justice System, Alfred Blumstein.
14. Special Libraries: Planning and Operation, Betty Weiner.
15. "ERIC Clearinghouse on Library and Information Sciences: Information Center Profile," Information: Part 1 News-Sources-Profiles, S. O. Frankie; J. I. Smith.
16. Library Career Development: Continuing Education Institutes, Barbara Conroy.
17. The Purpose of the Public Library in Historical Perspective: A Revisionist's View, Michael Harris.
18. The Changing Role of Special Libraries, Janice Ladendorf.
19. The Emerging Role of Paraprofessionals in Special Libraries, Elin Christianson.
20. Present Status of Research in the fields of Library and Information Sciences, E. DeProspero; H. Voos.

21. Survey of Library Science Journals that Publish Library Research, William McGrath.
22. Survey to Determine the Attitudes of Consumers of Research, R. Katz; L. Finks.
23. Black Academic Libraries--State of Affairs and Annotated Bibliography of Black Academe and Its Libraries, Casper L. Jordan.
24. Librarianship and Black Studies: A Natural Relationship, Jessie Carney Smith.
25. Library Services to American Indians, Janet N. Naumer.
26. Library Services to Appalachia: An Overview, Mayrelee Newman.
27. Library Services to Juvenile Delinquents, John E. Martin.
28. Library Services to Mexican Americans, William Farrington.
29. Library Services to Prisoners, Marjorie Le Donne.
30. Microfilm: Forms, Availability, Handling, and Use; A Guide to the Literature for Library and Information Centers, Fran Spigai.
31. Trends in Modern Subject Analysis with Particular Reference to Text-Derivative Indexing and Abstracting, Kieth Wright.

EXTENSIVE BIBLIOGRAPHIES

1. ERIC Products 1967-1972, J. I. Smith and Mary F. McCord, editors.
2. Audiovisual Materials in Support of Information Science Curricula: An Annotated Listing with Subject Index; First Edition, Revised, Irving Klemperer.
3. The Economics of Information: Bibliography and Commentary on the Literature--Second Edition, Harold A. Olsen.
4. Library and Information Sciences: An ERIC Bibliography.
5. Analysis and Bibliography of Basic Textbooks on Information Science, Jack Belzer.

OTHER SUBSTANTIVE REPORTS

1. Directions in Education for Information Science: A Symposium for Educators, Edmond Mignon, editor.

2. Directory of Education Programs in Information Science, Supplement, 1972-73,
Andrea Burgard, editor.
3. The Management of Information Analysis Centers: Proceedings of a Forum,
William Smith, editor.
4. Cumulative Index to the Annual Review of Information Science and Technology,
volumes 1-7

For the proposed 1973 contract period, we intend to continue these cost saving measures for the IAPs currently in process. Some arrangements have already been made, while others are still being negotiated, with the following organizations:

Science Associates/International, Inc.

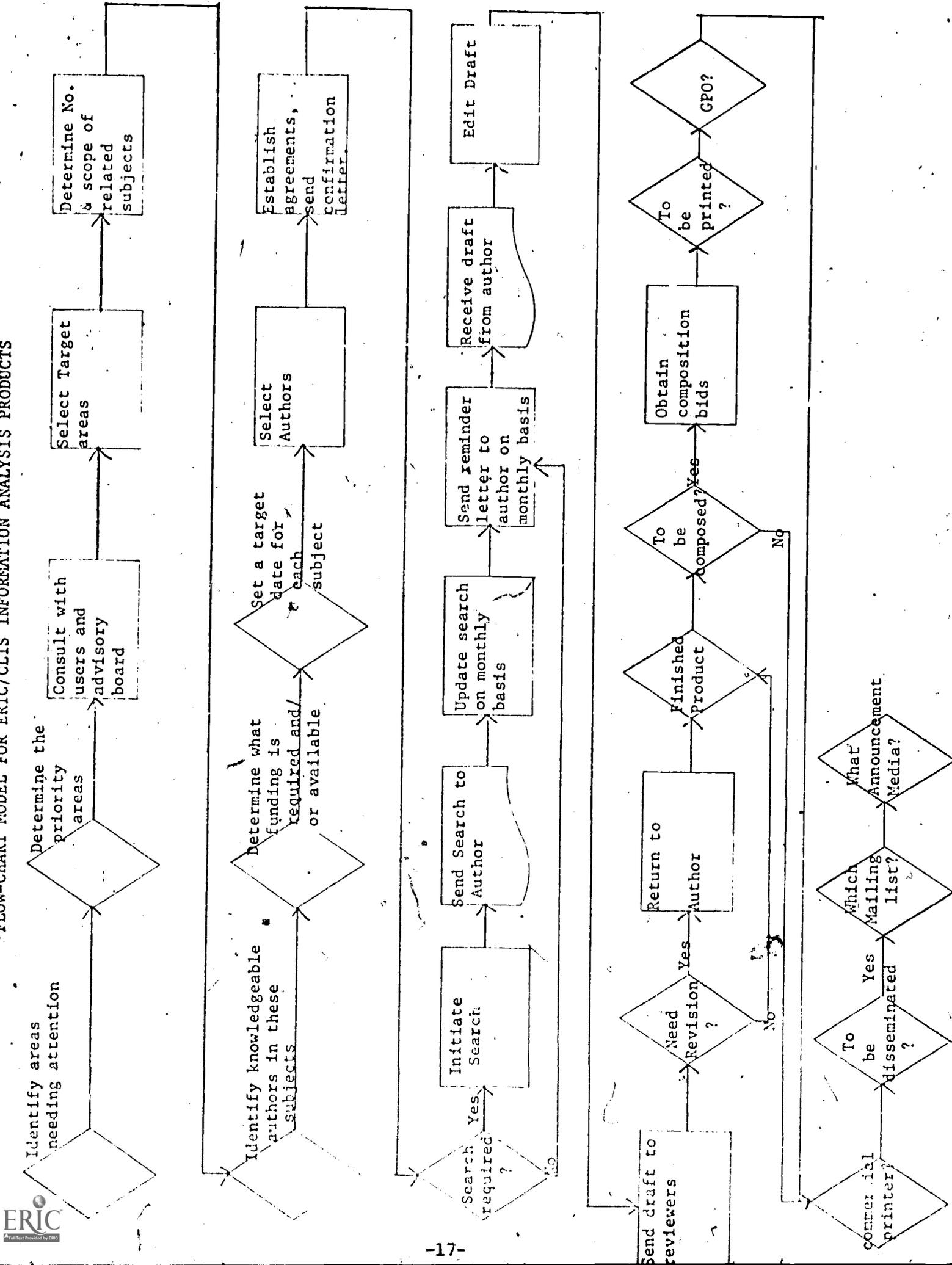
Special Libraries Association, Research Committee

American Library Association, Library Research Round Table

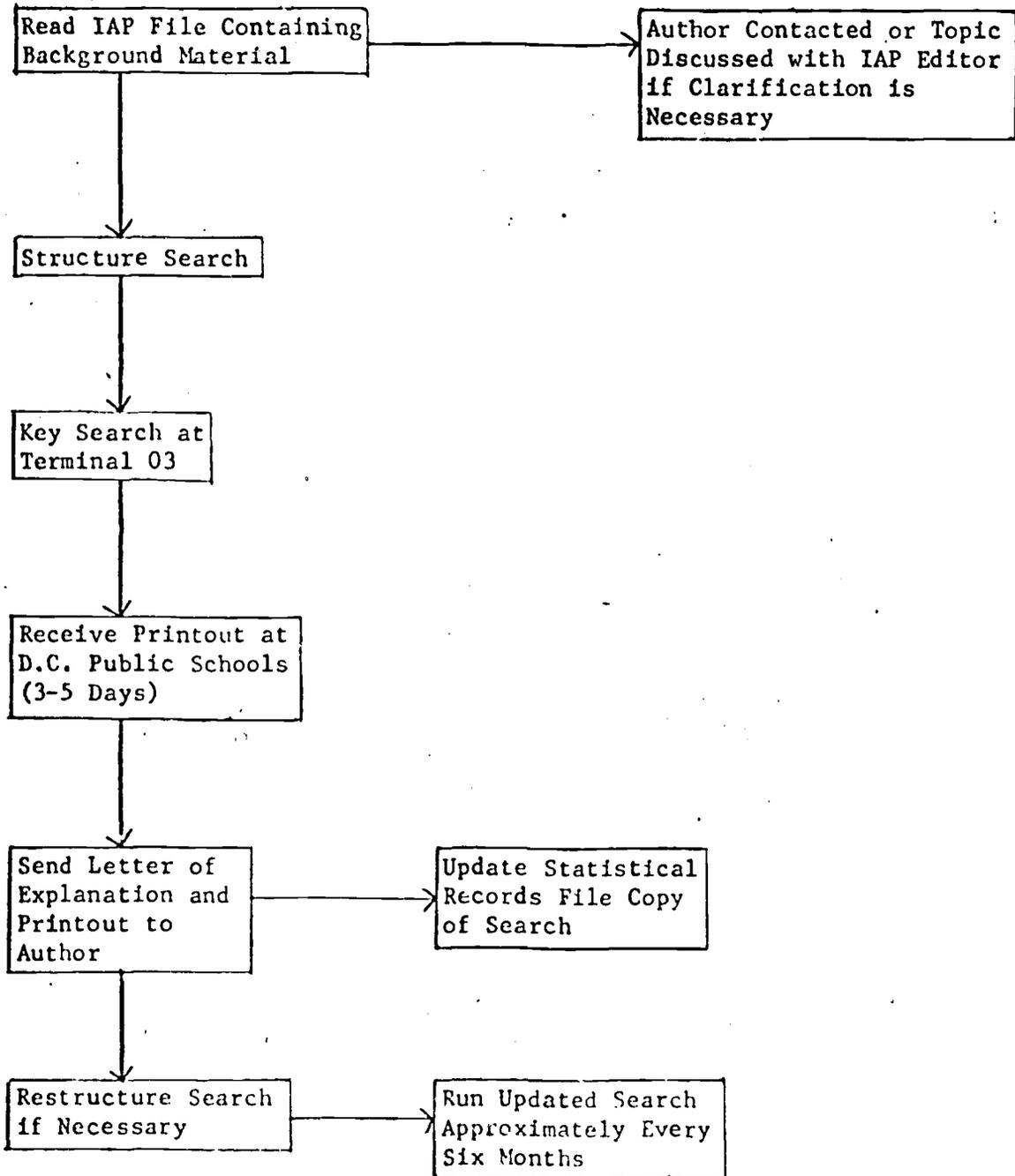
ONGOING PROJECTS EXPECTED TO BE COMPLETED DURING CONTRACT YEAR 1973

1. Continuing Education for Librarians, Elizabeth Stone.
2. How Libraries Determine Their Goals and Objectives, Norman Crum.
3. Automation of Technical Processes, Susan K. Martin.
4. Non-Print Media Services in Public Libraries, Jody Haberland.
5. Automation in Educational Media Centers, Jessica Harris.
6. Effecting Change in Library School Education, Allan Hershfield
7. Research Studies on Library Services to Children, Marion Van Orsdale.
8. Bibliography on the Evaluation of Information Science, B. Krevitt; B. Griffith.
9. Telemedicine, Kjell Samuelson.
10. Bibliotherapy, D. Ferguson; J. Cunningham.
11. Citation Literature, R. Walker; R. Durrance.
12. Continuing Education for Special Librarians, Lawrence Allen
13. Marketing of ERIC/CLIS Products--State-of-the-Art, Philip Kuehl.
14. ERIC Products 1971-1972, Mary F. McCord, ed.
15. Telecommunications, Herbert Ohlman.
16. Library/Information Services to the Urban Community, Hardy Franklin

FLOW-CHART MODEL FOR ERIC/CLIS INFORMATION ANALYSIS PRODUCTS



COMPUTER SEARCHES FOR IAP BIBLIOGRAPHIC SUPPORT



C. Services

1. Requests received by the Clearinghouse during report period: March 1, 1972 - February 28, 1973 (projected)
 - a. Phone - 862
 - b. Letter - 851
 - c. Visit - 215
 - d. Total - 1,928

2. Types of requests
 - a. Reference, nonsubject - 288
 - b. Reference, subject - 486
 - c. Spot bibliographies or literature services - 42
 - d. General questions on ERIC - 791
 - e. Other - 321
 - f. Total - 1,928

3. General breakdown of users
 - a. Education practitioners - 193
 - b. Education decision makers - 178
 - c. Research and development specialists - 199
 - d. Information professionals and dissemination specialists - 760
 - e. Professional organizations - 241
 - f. Other - 357
 - g. Total - 1,928

For the 1973 proposed contract period, we do not expect a substantial increase in the number of questions/inquiries received, but we are projecting increased unit costs. This reflects our intent to focus more attention and resources on direct user services. One aspect of this, for example, is increased staff time spent on computer searches using the Macmillan MYRIAD System at Leasco.

D. Promotional Activities - Newsletters, Bulletins, Brochures

ERIC/CLIS is actively engaged in announcing, describing, and promoting its activities, products, and services as well as those of the ERIC system as a whole, and selected, often co-sponsored services and products of ASIS. Promotional products consist of newsletters, brochures, press releases, bulletins, etc.

This promotional literature is presented (by mail or hand distribution at exhibits) to individuals and organizations interested in learning of current activities, services, and publications in the library-information science fields. The receivers of the promotional literature primarily are professionals in the field: educators, librarians, information scientists, computer specialists, library school professors, students, and administrators, etc.

During the contract period, several brochures announcing ERIC/CLIS products, services and special projects/arrangements were designed, printed and distributed. These brochures were disseminated to various audiences using the following means: ERIC/CLIS mailing list (over 5,000 names); ASIS membership mailing list (3,800 names); national, state, and local exhibits of various organizations; and readership /audiences of commercial publishers.

It is significant to note that ERIC/CLIS arrangements with commercial publishers realized cost savings in the production of these brochures, as well as greatly increasing their distribution, and thus the visibility of ERIC.

The following brochures were produced: (sample copies are attached)

1. Educational Facilities Center exhibit honoring ERIC and ERIC/CLIS at the 91st annual meeting of the American Library Association.

2. National Technical Information Service new mailing category "Library and Information Sciences."
3. The Annual Review of Information Science and Technology, Volume 7 and the Cumulative Index publication announcements.
4. Library and Information Sciences, An ERIC Bibliography.
5. ERIC Information Analysis Products 1967-1972.
6. INFORMATION - Part 2, Reports Bibliographies announcing two ERIC/CLIS IAPs:
 - a. The Economics of Information: Bibliography and Commentary on the Literature by Harold A. Olsen.
 - b. Audiovisual Materials in Support of Information Science Curricula: An Annotated Listing with Subject Index, by Irving M. Klemperer.
7. Library and Information Services for Special Groups publication announcement for seven ERIC/CLIS IAPs:
 - a. "Library Services to American Indians" by Janet N. Naumer.
 - b. "Library/Media Services in Appalachia: An Overview" by Marylee Newman.
 - c. "Library Services to Prisoners" by Marjorie LeDonne
 - d. "Librarianship and Black Studies - A Natural Relationship" by Jessie C. Smith.
 - e. "Library Services to Mexican Americans" by William Farrington.
 - f. "Black Academic Libraries - State of Affairs and Selected Annotated Bibliography of Black Academe and Its Libraries" by Casper L. Jordan.
 - g. "Library Services to Juvenile Delinquents" by John E. Martin.

Two issues of the Clearinghouse newsletter, ERIC/CLIS NEWS, were published during the contract period. These newsletters were distributed to those persons and organizations on the ERIC/CLIS mailing list, to the ASIS members and newsletter subscribers in the ASIS newsletter, at various meetings, and upon request.

The monthly Newsletter of the American Society for Information Science, distributed to all ASIS members and paying subscribers, contains a column for Clearinghouse news and activities written by ERIC/CLIS staff members.

E. Publicity and Public Relations

Staff Members of ERIC/CLIS attended various workshops and meetings, and gave presentations on the ERIC system at library schools and organizational meetings.

1. Participation on panels and presentations

- a. Federal Library Committee
- b. ALA Midwinter Meeting
- c. Federal City College
- d. University of Maryland
- e. Library Association of the City University of New York
- f. Department of Agriculture, Cataloging Class
- g. SLA Documentation Division
- h. Library Research Round Table
- i. Educational Facilities Center
- j. American University
- k. Catholic University
- l. Syracuse University
- m. University of Denver
- n. University of Michigan

2. ERIC Workshops

- a. St. John's University
- b. ERIC Problems Workshop

3. Other Affiliations and Arrangements

- a. American Association of Library Schools
- b. SLA Midwinter Meeting
- c. ERIC On-Line Conference
- d. NFSALS Meeting
- e. SLA Annual Meeting
- f. ALA Annual Meeting
- g. National Dissemination Conference
- h. Information Industry Association
- i. Gordon Research Conference
- j. Foundation Center
- k. ERIC Tape Users Conference
- l. ERIC Directors Meeting
- m. ASIS Annual Meeting
- n. ERIC lobby design presentation
- o. Federal Library Committee
- p. NIE Task Force on Dissemination Panel on Indicators of Information Services

ERIC presentations which are scheduled for meetings during the proposed contract period are:

- a. Presentation to Library Science students at Queens College, March 1973
- b. Presentation on the "Services of ERIC in Curriculum and Media" at the American Library Association meeting in Las Vegas, June 25, 1973.

In addition, an invitation has been received to give a presentation on the ERIC/CLIS program, activities and goals at the 1973 National Computer Conference and Exposition.

Other scheduled meetings to attend are:

- a. National Federation of Abstracting and Indexing Services, 1973 Annual Conference
- b. 10th National Information Retrieval Colloquium

F. Special Activities and Arrangements

Advisory Board

A new ERIC/CLIS Advisory Board has been appointed and a meeting was held on January 23, 1973 at the ASIS/ERIC/CLIS offices. The members of the Board and their organizational affiliations are:

Andrew A. Aines - National Science Foundation

Charles P. Bourne - University of California, Berkeley

Milton S. Byam - DC Public Libraries

Don S. Culbertson - American Library Association

Frank Kurt Cylke - Federal Library Committee

Ben-Ami Lipetz - Yale University Library

Stephen A. McCarthy - Association of Research Libraries

Catherine D. Scott - National Air and Space Museum Library

Paul G. Zurkowski - Information Industry Association

We anticipate one meeting of the Advisory Board during the proposed contract period.

Abstract Agreements

Abstract agreements with top journals in the fields of library and information science continue to enable ERIC/CLIS to reach an audience of over 70,000 subscribers. ERIC/CLIS monthly input to Research in Education is sent to the editors of the journals who select items of top priority and interest to their readership. These ED documents, citations and abstracts appear in the journals as ERIC/CLIS accessions. The following journals are participants in the abstract agreements.)

- College & Research Libraries
- FIC Newsletter
- Information Dissemination Report
- Information, Part II
- Information Retrieval & Library Automation Letter
- Information Science Abstracts
- LARC Newsletter
- Library Literature
- Library Resources and Technical Services
- School Media Quarterly
- Special Libraries

In addition, ERIC/CLIS abstracts are supplied on a monthly basis to the National Technical Information Service for their publication "Government Reports Topical Announcement: Library and Information Sciences".

Educational Facilities Center Exhibit

"ALL ABOUT ERIC: The Products, the Services, and the Operation" was the theme for a special three-day seminar sponsored by ERIC/CLIS and the Educational Facilities Center (EFC) in Chicago. The event was held during the 91st Annual Meeting of ALA and took place at the EFC on 223 North Michigan Avenue, Chicago, Illinois. Over twenty-five organizations participated in exhibiting ERIC-related products. An estimated 1,000 persons attended the event. ERIC/CLIS and EFC

produced and circulated a brochure announcing the exhibition. The exhibit was also announced in the EFC Newsletter for Teachers.

A close relationship between ERIC/CLIS and the EFC is being maintained so that both organizations can work together to better serve their mutual clients, users and patrons -- educators.

National Commission on Libraries and Information Science Commentaries

ERIC/CLIS entered into a special arrangement with the National Commission on Libraries and Information Science (NCLIS) to provide bibliographic support on topics designated by the Commission. The project includes identifying and assessing the literature in the priority areas designated by NCLIS, writing commentaries on developments and trends as reported in the literature, and making various typology analyses of the literature. A bibliography of the major documents for each priority area is provided.

The main objective of this effort is to present information on priority topics in such a manner so that each member of the Commission will be able to rapidly read and understand the major developments reported in the literature.

ERIC/CLIS provided the bibliographic support from such data bases as ERIC, NTIS, MEDLARS, DATRIX, Information Science Abstracts, Library Literature, and Indiana University's Long Range Research Project (Phase I base). The three persons commissioned to write the commentaries were Suzanne Frankie (former Senior Library Scientist at ERIC/CLIS), Harold A. Olsen (Associate Director of Libraries, Oberlin College), and Douglas Zweizig (Assistant Professor of Library Science, University of Toledo).

The Commission has expressed an interest in providing topics to ERIC/CLIS on a continuing basis for similar reporting.

University of Maryland Seminar Miniproposal

The School of Library and Information Services of the University of Maryland, with financial assistance from ERIC/CLIS conducted a Seminar on Research Methods focusing on the marketing of ERIC/CLIS information analysis products. The seminar was offered for credit to graduate students in librarianship and business administration. The course was designed to provide an opportunity for students to act as consultants in the analysis of a working information system. The students examined the Clearinghouse operation from such perspectives as micro-level information economics (pricing, costing), production, user needs and audience sociology (sampling, measuring instruments). Although the final reports have not been completed as yet, it was the consensus of the group that the School librarians represented the group to which ERIC/CLIS should direct more of its efforts and products. As a result, the Clearinghouse is developing a program to work with the school library community. A state-of-the-art paper based on the seminar, "The Marketing of Information Analysis Publications to Educators," is being prepared by Dr. Philip Kuehl and Dr. Jerry S. Kidd.

DOCUMENT RESUME

ED 088 448

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AUTHOR Boutwell, Richard C.; Tennyson, Robert D.
TITLE Concept Learning As Processed By Task Sequence And
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Educational Technology.
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EDRS PRICE MF-\$0.75 HC-\$1.50
DESCRIPTORS Anxiety; College Students; Educational Research;
*Learning Processes; *Memory; Psychological Studies;
*Sequential Learning; *Serial Learning; *Task
Performance
IDENTIFIERS Memory Support; State Anxiety; Task Sequence

ABSTRACT

The multivariate effect of task sequence, memory support, and state anxiety was investigated using a nonverbal concept acquisition task. Ninety-five Indian college students were randomly assigned to four treatment conditions resulting from the task sequences of 1) easy-to-hard and 2) hard-to-easy and from memory support versus nonmemory support. Results showed that subjects receiving the easy-to-hard sequence did significantly better on the performance test than did those receiving the hard-to-easy sequence. Also, the memory support treatment groups had significantly fewer errors on the performance test than did the nonmemory support groups. The instructional condition of easy-to-hard sequence plus memory support was the optimal treatment and provided manipulatable variables for applied usage. (Author)

ED 088448

CONCEPT LEARNING AS PROCESSED BY TASK
SEQUENCE AND MEMORY SUPPORT

Richard C. Boutwell and Robert D. Tennyson

September 15, 1973
Working Paper No. 8

Submitted to the Journal
of Applied Psychology

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Concept Learning as Processed by Task
Sequence and Memory Support

Richard C. Boutwell and Robert D. Tennyson
Florida State University

ABSTRACT

The multivariate effect of task sequence, memory support, and state anxiety was investigated using a nonverbal concept acquisition task. Ninety-five Indian college students were randomly assigned to four treatment conditions resulting from the task sequence, easy-to-hard and hard-to-easy, and memory support versus nonmemory support. Results showed that subjects receiving the easy-to-hard sequence did significantly better on the performance test than the hard-to-easy sequence ($p < .01$). Also, the memory support treatment groups had significantly fewer errors on the performance test than the nonmemory support condition ($p < .01$). The instructional condition of easy-to-hard sequence plus memory support, as the optimal treatment, provides manipulatable variables for applied usage.

Concept Learning as Processed by Task Sequence and Memory Support¹

Richard C. Boutwell² and Robert D. Tennyson
Florida State University

Research studies (Tallmadge, Schearer, & Greenberg, 1968; Dunham & Bunderson, 1969; Merrill, 1970; Tennyson & Boutwell, 1973c) have indicated that disordinal interactions between personality variables and task conditions have an elusive nature. These studies, which are dependent on task difficulty, have lacked explicitly stated empirical procedures to govern item difficulty. Such procedures are necessary for accurate testing of the theoretical assumption of an anxiety and cognitive interaction. In a recent study by Tennyson and Boutwell (1973b), a system was used in which an empirically based difficulty level was assigned to a concept learning task. Two critical attributes of an anxiety-by-task interaction study were found to be essential: measured anxiety differences, and an empirically-based task difficulty contrast. Their study, using a multivariate data analysis, showed that subjects receiving an easy-to-hard sequence had significantly higher scores on the learning task than subjects receiving the reverse sequence. Also, within-task state anxiety measures resulted in a hypothesized disordinal interaction between the two sequence groups. Generalizing these results to an individualized environment of task difficulty, sequence might indicate differential treatments for learners of varying anxiety levels.

¹This experiment was supported by the United States Department of Health, Education, and Welfare Regional Grant No. OEG-8-72-0002(509). The authors would like to express their acknowledgement to David Merrill, who served as the sponsor of the experiment.

²Requests for reprints should be sent to Richard C. Boutwell, Computer Applications Laboratory, Florida State University, Tallahassee, Florida 32306.

Learners reporting high state anxiety are likely to employ random acquisition strategies and make random choices on a performance test when not given self-reinforcement (memory support) (Wolfgang, Pishkin, & Lundy, 1962). Sieber, Kameya, and Paulson (1970) concluded that highly anxious learners are neither "...cautious nor accurate problem-solvers..." when critical information is not available. Research has suggested (Boutwell & Tennyson, 1973) that the difference between performance in high anxiety and low anxiety learners may be related to the amount of self-reinforcement or memory support they receive during a task. In a functional individualized program, memory support allows the learner to return to the learning stimulus during the performance test.

Hypotheses

The purpose of this study was to investigate the effect of state anxiety on task difficulty sequencing and memory support. The first hypothesis was a replication of the Tennyson and Boutwell (1973b) study which showed the significant effectiveness of the easy-to-hard sequence task. The extension was the inclusion of a memory support condition in the treatment condition. Along with the combination of the sequence variable and memory support variable, a further extension involved the use of a multivariate analysis design using three repeated state anxiety measures and two task performance test measures. The optimal treatment, in terms of test performance, was hypothesized to be an easy-to-hard sequence plus memory support. A third hypothesis was that task sequence would affect within-task anxiety levels, resulting in a disordinal interaction.

Method

Subjects. The subjects were 96 students chosen from undergraduate Indian education classes at Brigham Young University who were randomly assigned to experimental treatments. Subjects volunteered and were paid for their services. No experimental group had a disproportionate number of males to females. The range of ages within these groups was from 19-27 years.

Learning task. The behavioral objective for this task required subjects, after reading a definition that included two prompted examples and two prompted nonexamples, to identify examples of RX_2 crystals from a list containing new examples and nonexamples. A prompted instance is one in which each critical attribute is individually separated, identified, and defined. A definition (critical attributes) of RX_2 crystals was presented to the subjects for the task, drawing their attention to the basic repeating two-to-one ratio in the crystal structure of the atoms. This concept was further elaborated as follows: "For a given atom there will be another two atoms attached to it in a repeating fashion." The subjects were also told that symmetry of the crystal was irrelevant. Each page of each task consisted of a single shaded crystal picture taken from Crystal Structures by Wyckoff (1968).

In order to obtain empirical validation of the task difficulty level, competitive response strength of hard and easy items, Tennyson and Boutwell (1973a) defined an item difficulty analysis for rating and categorizing all the instances of the proposed task according to how hard they were for the subjects to recognize. The concept, RX_2 crystals, identification task was formulated according to this analysis. Then it

was administered to 100 subjects from the same target population as the one used in the experiment. Each instance to be used in the task was tested for competitive response strength. Easy items, strong correct response, were those instances correctly identified by 70 percent or more of the subjects. Hard items, strong incorrect response tendencies in competition with the correct response, were those instances correctly classified by less than 30 percent of the subjects. During the treatment, all subjects received successively a hard/easy or an easy/hard segment and each segment had 20 examples and 20 nonexamples. This concept was used because the task had to be a previously unencountered concept and none of the subjects reported any previous knowledge of RX_2 crystals.

The independent variable of memory support involved either permitting or barring subjects from returning to the RX_2 crystal definition and the prompted examples and nonexamples. The two difficulty levels of the task, hard and easy, were crossed with the two conditions of memory support. Being able to return was, in effect, supplying additional information to the subject since concept identification strategies may very well depend on subject self-feedback. Feedback was only possible in the memory support condition. The memory support versus nonmemory support condition was introduced only after the task had begun.

Anxiety measures. The Spielberger, Gorsuch, and Lushene (1969) State-Trait Anxiety Inventory (STAI) was used to measure trait and state anxiety. The A-Trait (Form X-2) Scale asks subjects to indicate how they "generally feel," while the A-State (Form X-1) Scale requires subjects to indicate how they feel "at this moment." The scales, consisting of 20 items, were printed on opposite sides of the questionnaire, within

the two tasks a five-question A-State scale was used: I am tense; I feel at ease; I am relaxed; I feel calm; I am jittery.

Procedure. Each experimental treatment was administered individually. When finished with the first A-State survey, the subjects returned it to the experimenter to be scored. The subjects were then placed into one of three anxiety levels: low, medium, and high. After being assigned to their initial anxiety level, the subjects were randomly assigned to one of four possible treatments of the factorial design. The treatments were contained in color-coded self-instructional booklets.

The booklet introduction identified the experimenter and the department conducting the study, with directions following. Directions explained the method of responding on the IBM answer sheet. Next, instructions for memory support stated explicitly whether the subject could return to the prompted examples and nonexamples or not. The experimenter was always present to help ensure compliance with the instructions and to control the environmental setting. Following the instructions came the prompted examples and nonexamples pointing out the critical and irrelevant concept attributes. Subjects then classified ten new examples and ten nonexamples for the first task. After the subject had identified these twenty new instances, he was administered the second A-State survey to measure how he felt during the first task. A second task was taken and concluded with the third STAI A-State measuring how the subject felt during the second task. The final page thanked the subject for his time and asked him to return the materials to the experimenter.

Results

Five dependent variables were analyzed using a multivariate statistical design. These variables were: the correct total scores on the easy and hard crystal identification tasks; and the three STAI A-State Scale scores. Statistical power values were derived according to procedures outlined in Cohen (1969). A medium effect size of .25 was established for all data analyses. An alpha level of .01 was pre-determined for all tests to keep beta sufficiently small for the N size used in the experiment. Two independent variables, task sequence and memory support, were factored into four treatment groups. The tasks and A-State (2) and (3) means for groups III and IV have been reversed for analysis purposes (see Table 1). The multivariate analysis of variance resulted in a statistical difference between the four groups (U > .31, df = 5/3/88, power = .99).

Task sequence. Combining the two task scores, the overall performance score means showed the two easy-to-hard sequence groups doing significantly better, with a mean score of 26.14, than the hard-to-easy groups, with a mean score of 18.60 (U > .59, df = 2/1/88, power = .88). A second hypothesis was a univariate test comparing the groups on the easy task. The result was a significant difference between the two sequences, with the easy-to-hard sequence having a mean correct score four points higher than the hard-to-easy sequence (U > .60, df = 1/1/88, power = .79). The size of the difference in mean scores between the two sequences on the easy task results in significance with any multivariate hypothesis test. A second univariate hypothesis test on the hard task

TABLE 1

Multivariate Means

Treatment Groups	Dependent Variable Measures				
	A-State (1)	Easy	A-State (2)	Hard	A-State (3)
Easy - Hard Memory	35.8	15.7	43.8	12.7	41.2
Easy - Hard Nonmemory	36.2	12.4	40.7	11.4	41.9
Hard - Easy Memory	36.3	11.5	40.6	8.2	42.3
Hard - Easy Nonmemory	36.8	10.3	43.6	7.3	44.3

showed that the easy-to-hard sequence was significantly better on the task than the other sequence ($U > .62$, $df = 1/1/88$).

Memory support. This study investigated the variable of memory support by designing a condition similar to the prior studies (not allowing subjects to return to the instructions) and a second condition which directed subjects to return to the instructions when needed. Using the multivariate hypothesis blocking on memory support, a significant U resulted with the memory support condition, with a total score of 24. This has a higher correct score than the nonmemory support treatment, mean of 20.7 ($U > .79$, $df = 2/1/88$, power = .88). A univariate analysis was performed on each task with the memory support having a significantly higher score on both tasks; easy task ($U > .76$) and hard task ($U > .86$).

STAI A-State. The measure of subject state anxiety was a dependent function of sequence and task demands within the experimental treatments. The first measure of A-State was administered to the subjects as the first treatment, resulting in no difference of means between the four groups ($U < .99$, $df = 1/3/88$, power = .77). The A-State (1) mean of 36 compares with the average A-State score of 37 reported by the STAI manual (Spielberger, et al., 1969). A-States (2) and (3) were taken following each of the tasks and asked subjects to respond according to how they felt during the task. In both univariate tests on A-State (2) and (3), there was no significant difference between the means ($p > .05$). However, reported A-State did increase after the subjects were performing on the tasks. A-States in both tasks increased to 44, a significant gain after the initial measure.

Optimal condition. The present study extends prior research of task sequence by introducing memory support. The hypothesized optimal sequence and condition was easy-to-hard with memory support. Using a multiple comparison analysis for multivariate data (Morrison, 1967), group I, with a total mean of 28.4, had the highest significant score of the four conditions (see Table 1). The second easy-to-hard group (group II) had the second highest mean, which was significantly better than groups III and IV, which did not differ. When analyzing the two tasks univariately, the easy task mean differences were significant ($U > .56$, $df = 1/3/88$, $power = .88$), as were the hard task means ($U > .48$, $df = 1/3/88$). On the easy task the multivariate multiple comparison was the same as the total score comparison. On the hard task groups I and II did not differ ($p > .05$), but they did have higher means than groups III and IV (which did not differ).

Discussion

To further test the Spence-Taylor drive theory, which proposes that competing response tendencies interfere with learner performance differentially given a difficult and easy task, was the initial purpose of this study. According to the Spence-Taylor theory, highly anxious learners generate a high level of stimulus-derived anxiety (Sd), the inhibiting aspect of anxiety which mistakenly drives them to the strongest response competing for their attention. Oftentimes, whether the response is correct or not, the highly anxious learner will choose it because of its strength or dominance (Spence, 1958; Taylor, 1956).

The experimental findings of this study did not support the Spence-Taylor theory of disordinal anxiety by task performance hypothesis. The

Lack of effect is related to the findings in the STAI A-State anxiety profile analysis which showed nonsignificant difference between A-States (2) and (3). The implication is that in order for the disordinal interaction between performance and anxiety to occur, there first must be a difference in anxiety levels, which did not exist on anxiety test two or three. This is interpreted to mean that since hypothesis three was not supported, the Spence-Taylor competing response theory was not tested as there were no differences in the subjects' anxiety during task performance. On the other hand, the A-State scores (2) and (3) did increase significantly from A-State (1).

The results of the data analysis showed the effectiveness of the easy-to-hard sequence, replicating Tennyson and Boutwell (1973b). These findings indicate that an easy-to-hard sequence does improve performance on the hard task in comparison to a learning task beginning with a hard task. An initially hard task seems to have debilitating effects on succeeding performance in the learning task. Adding memory support to this sequence, an increasingly optimal instructional design for concept acquisition is the easy-to-hard sequence which provides an additional source of information to the learner in the completion of his task. This higher level of classification behavior relieves the learner from memorizing nonrelevant material. These results confirm the value of the memory support condition in obtaining higher correct task scores.

Trait anxiety has been measured with task interaction experiments, and generally has been unsuccessful in supporting the Spence-Taylor disordinal interaction theory (Boutwell & Tennyson, 1973). State anxiety level is task specific. The large amount of contradictory data that exists

concerning the interaction between subject anxiety and task performance appears to be due to the fact that the interaction depends on the anxiety-evoking characteristics of the task, and not exclusively on the subject's anxiety level. Future anxiety-by-task interaction studies will also be contradictory unless controls are adopted to measure anxiety for a specific task. That is, instructional tasks can be empirically designated easy and difficult (Tennyson & Boutwell, 1973a), but until tasks can also be designated as anxiety-evoking on a similar continuum, there is little hope of implementing a generalizable hypothesis concerning the interaction of subjects' anxiety effects during the instructional process and subsequent performance.

This constraint should not detract from the fact that optimal task sequence with memory support provides instructional value by relieving the learner of unnecessary cognitive processing. This anxiety experiment discovered that rather than adapt students' anxiety level to instruction, it would be of more value to improve the parameters of the instructional task, i.e., sequence and feedback. We are suggesting that this validation and revision process in the discovery of the most optimal instructional variables is a more worthwhile process than the adaptation of instruction to idiosyncratic student characteristics.

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