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ABSTRACT

The information retrieval demonstration and research project was designed to demonstrate the computer terminal system of information retrieval from a central computer. Specifically, the system concentrated on computer searching of the ERIC system. The demonstrations took place by locating nine terminals in volunteer districts and conducting inservice training to acquaint the people with its use. The research component was twofold; first an attempt was made to identify alternate educational applications of the computer terminal for the districts and second, an analysis of staff usage over a four-month period has been evaluated and documented as to type and extent of activities. Results to date show a generally favorable acceptance of the system, as well as a growing use of the computer terminals in obtaining information for curriculum development and for research. A location list of materials and glossary of useful terms are followed by appendixes, comprising four-fifths of the document. They give general information on the Academic Computing Center, the operation of the WISE-ONE computer system, copies of overhead projections, and samples of forms used in the system. (Author/NH)

FINAL REPORT

Project No. 19-031-151-224

INFORMATION RETRIEVAL DEMONSTRATION AND RESEARCH PROJECT

Roger H. Lambert, Ph.D., Project Director
Richard M. Schwartz, Project Coordinator

June 1974

CENTER FOR STUDIES IN VOCATIONAL AND TECHNICAL EDUCATION
UNIVERSITY OF WISCONSIN-MADISON

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608-263-3696

The research reported herein was performed pursuant to a grant or contract with the Wisconsin Board of Vocational, Technical and Adult Education, partially reimbursed from an allocation of Federal funds from the U. S. Office of Education, U. S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official State Board or U. S. Office of Education position or policy.

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Project Summary

Title
Information Retrieval Demonstration and Research Project

Key Personnel
Roger Lambert, Richard Schwartz

Submitted To
The Wisconsin Board of Vocational, Technical and Adult Education

Matching Funds
None

Cooperating Units
Madison Academic Computing Center; Wisconsin Board of Vocational, Technical and Adult Education; Department of Public Instruction; the following VTAE Districts: Milwaukee, Western Wisconsin, Southwest Wisconsin, Fox Valley, District #1, Waukesha County, North Central, Gateway, Eau Claire

Duration
December 1, 1973 - June 30, 1974

Date Submitted / Date of Award
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Originated By
Center for Studies in Vocational and Technical Education

Approximate Value
$14,000

Abstract

The information retrieval demonstration and research project was designed to demonstrate the computer terminal system of information retrieval from a central computer. Specifically, the system concentrated on computer searching of the ERIC system with potential search of the National Technical Information Service tapes as a long range goal. The demonstrations took place by locating nine terminals in volunteer districts and conducting in-service training to acquaint the people with its use.

The research component was two fold, first an attempt was made to identify alternate educational applications of the computer terminal for the districts and second, an analysis of staff usage over a four-month period has been evaluated and documented as to type and extent of activities. This phase is continuing through September 1.

Results to date show a generally favorable acceptance of the system, as well as a growing use of the computer terminals in obtaining information for curriculum development and for research. Future expansion of the existing system is envisioned, providing access to more data bases and for more of the local staff personnel throughout all sixteen Wisconsin Vocational Districts.

INTRODUCTION

The Information Retrieval System

Remote, on-line computer access for document searches and information retrieval utilizing the RIE, ARM, AIM and CIJE document files is in operation along with an in-service training program for staff in eight of the sixteen Wisconsin Postsecondary, Vocational, Technical and Adult Education districts. The schools have each received a CRT terminal for use and appropriate training has been supplied as a result of a project developed by the Center for Studies in Vocational and Technical Education, University of Wisconsin-Madison. Funds for the project are being provided by the Wisconsin Board of Vocational, Technical and Adult Education. The Wisconsin Department of Public Instruction and the University of Wisconsin-Madison Academic Computing Center are also cooperating with the project. The major thrust of the program is to provide immediate feedback to the user, no matter where he is located. By working on-line, the user is given the results within seconds of conducting his search. Titles, author names and complete bibliographic citations of nearly 200,000 educational documents are literally at his fingertips.

The Materials on File

The types of materials contained in the ERIC files are many and varied. Pertinent to the field of education, there are significant documents for all levels of education, as well as in sixteen specialized areas, including career education, handicapped and gifted children, higher education, evaluation and measurement, information resources, and junior colleges. There are reports of conference

proceedings, bibliographies, professional papers, innovative programs, and curriculum-related materials, all readily available to the ERIC user.

The Computer Program

The computer program being used in this information retrieval project is the WISE-ONE system, created by Tom Olson, with Donald N. McIsaac and Dennis W. Spuck of the University of Wisconsin-Madison School of Education, and Roy D. Tally of the Wisconsin Department of Public Instruction. The WISE-ONE system provides access to document and abstract files produced by the ERIC (Educational Resource Information Center) program of the National Institute of Education. The WISE-ONE program is used to search through the ERIC document files and retrieve all those documents which meet the user's needs.

The ERIC Documents

The ERIC system center collects, abstracts, classifies and catalogs this information and publishes resumes of all reports in the monthly periodicals of Research in Education (RIE) and Current Index to Journals in Education (CIJE). In addition to these periodicals, ERIC produces copies of RIE abstracts and CIJE annotations in machine-readable form through a subcontractor. The subcontractor, Leasco Information Systems of Bethesda, Maryland, provides the ERIC files on computer tape to subscribers on a monthly, quarterly or annual update basis. In addition to the RIE and CIJE data bases, the AIM (Abstracts of Instructional Materials in Vocational and Technical Education) and ARM (Abstracts of Research Materials in Vocational and Technical Education) document files are available as part of this project.

METHODOLOGY

File Access

Documents catalogued in the ERIC files are indexed by subject-matter descriptors, identifiers and author names. Descriptors characterize the substantive content of the report and are themselves indexed in the Thesaurus of ERIC Descriptors. Additional terms not listed in the Thesaurus, but which are useful in describing a particular document are called Identifiers. Catalogued information is also addressable by the last name of any author associated with it. WISE-ONE is written to search for documents catalogued under any of these indices and will yield the ERIC Accession Number, Author and Title associated with the selected documents. In the case of journal files, the journal name, volume and page are also displayed.

Training Sessions

Individual training sessions have been held for the key operators selected by each district. Additional campus-wide in-service sessions have been held to train the staff members in utilization of the remote access capability. Overhead projections describing the ERIC system and detailing search strategies were presented, along with a demonstration of the computer terminal. Sample searches were performed to show the immediacy of the results.

Remote Location Access

Access to the data bases is accomplished through the use of computer terminals located at the Technical Institutes throughout the state, linked via telephone lines to the UNIVAC 1110 Computer at the University of Wisconsin-Madison Academic Computing Center. The time

needed to search through the files is usually less than ten seconds, compared with hours or days which would be needed to perform a manual search. The on-line access provides an instant display of the search results, and enables the local user to immediately redirect the search program if he determines that the materials identified are not appropriate to his need, are too numerous, or are too narrow in scope. If the identified materials are appropriate, he can secure the corresponding microfiche copy or he can ask the computer to send him a printout of the abstracts which will be mailed the next day. Displays of title, author, and ERIC accession number are available on the terminal screen; these may also be printed on paper if a printer is attached to the terminal, or they may be printed at a remote site and mailed to the user.

FINDINGS AND ANALYSIS

The goals of the project were to develop, through a demonstration project, a statewide system whereby VTAE district personnel have immediate and convenient access to information systems available on the University of Wisconsin computers and other computers in the state or nation, and to increase the local district staff utilization of ERIC, AIM, ARM, and other material available through the University of Wisconsin computerized search and State Board microfiche dissemination system.

The primary objectives of the project were to:

1. Install and make operative, computer terminals of various types in at least eight districts by the end of 2 1/2 months of project operation.

   (Due to unforeseen delays in equipment delivery, the terminals were installed during the third and fourth months of the project.)

2. Train at least one person from each project district to operate and to gain access to the computerized information retrieval system by the end of the third month of operation.

3. Conduct in-service sessions at the convenience of local personnel for all district staff by the end of the fourth month of operation.

   (Demonstrations were held prior to the installation of the terminals, and training took place both at the time of demonstration and at the time of installation.)

4. Provide consultant assistance to individual district personnel as needed to maximize the retrieval capabilities of the system.

5. Develop through the vehicle of in-service sessions, an instructional staff awareness, familiarity and acceptance of the capability of the system for their own needs as evidenced through user requests for searches and microfiche.

6. Identify the alternate potential educational uses which may be made of the various computer terminals demonstrated in the eight districts.

(Information on other uses was demonstrated to the district operators, and documentation was distributed. In addition, other uses and embellishments of the system in use were demonstrated at the in-service workshop held in Madison in May.)

7. Evaluate the usability of the various terminals, the local computerized access system and the overall usage level of the ERIC and/or other information systems involved in the project.

(Due to the delays in delivery and to the mechanical failures of the computer at the Madison Academic Computing Center, a complete evaluation has not taken place. However, preliminary usage figures show a wide range of use reflecting the staggered installation dates. Most of the searches to date have been done in response to requests by school faculty and administrative staff members. Forms were designed to aid the requestor and the searcher in creating the most effective search strategies. Response to the project has been very favorable, and use has grown considerably throughout the project. The number of uses per month is listed below, where the numbers refer to the number of times a search was made in any of the three data base files - RIE, CIJE, or AIM/ARM.)

March - 70
April - 156
May - 168
June - 222 (through June 21)

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

There is no doubt that information retrieval systems using computers will become essential as the amount of available information sources continues to grow rapidly. With remote on-line access possible through the use of computer terminals, any interested person will have vast resources instantly available to him. The hardware needed is here; with training in its operation, the local user will find he has an inexpensive and rapid method of obtaining information he needs, no matter where he is located.

Future Directions

It is hoped that expansion of the present project will allow for each district to establish a regional center for information dissemination. The center would then provide access to the material for local public school personnel as well as for persons from other interested agencies. The project is envisioned as the catalyst to initiate the computer search system and to carry on a coordinated dissemination program between the University, the State Board, the Technical Institutes, and the Department of Public Instruction. The addition of more data bases is planned, along with the development of more sophisticated search techniques, in providing the most information in the shortest time to the local user.

Future goals are: 1) to develop, through further demonstration and training, a statewide system whereby VTAE district personnel have immediate and convenient access to information systems available on the University of Wisconsin computers, and to establish a direct system

of mailing between the districts and the computer center through a "mailbox" program; and 2) to increase local district staff utilization of ERIC, AIM, ARM, NTIS and other material available through the University of Wisconsin computerized search and State Board microfiche designation system. These may be carried out by realizing the following objectives:

1. Install and make operative, computer terminals in interested districts which did not participate in the previous project.

2. Train at least one person from each project district to operate and to gain access to the computerized information retrieval system.

3. Conduct in-service sessions at the convenience of local personnel for all district staff in any of the districts participating in either information retrieval project.

4. To "bring up" the National Technical Information Service (NTIS) tapes for use by the districts.

5. To train all district persons through in-service in the retrieval of information from NTIS.

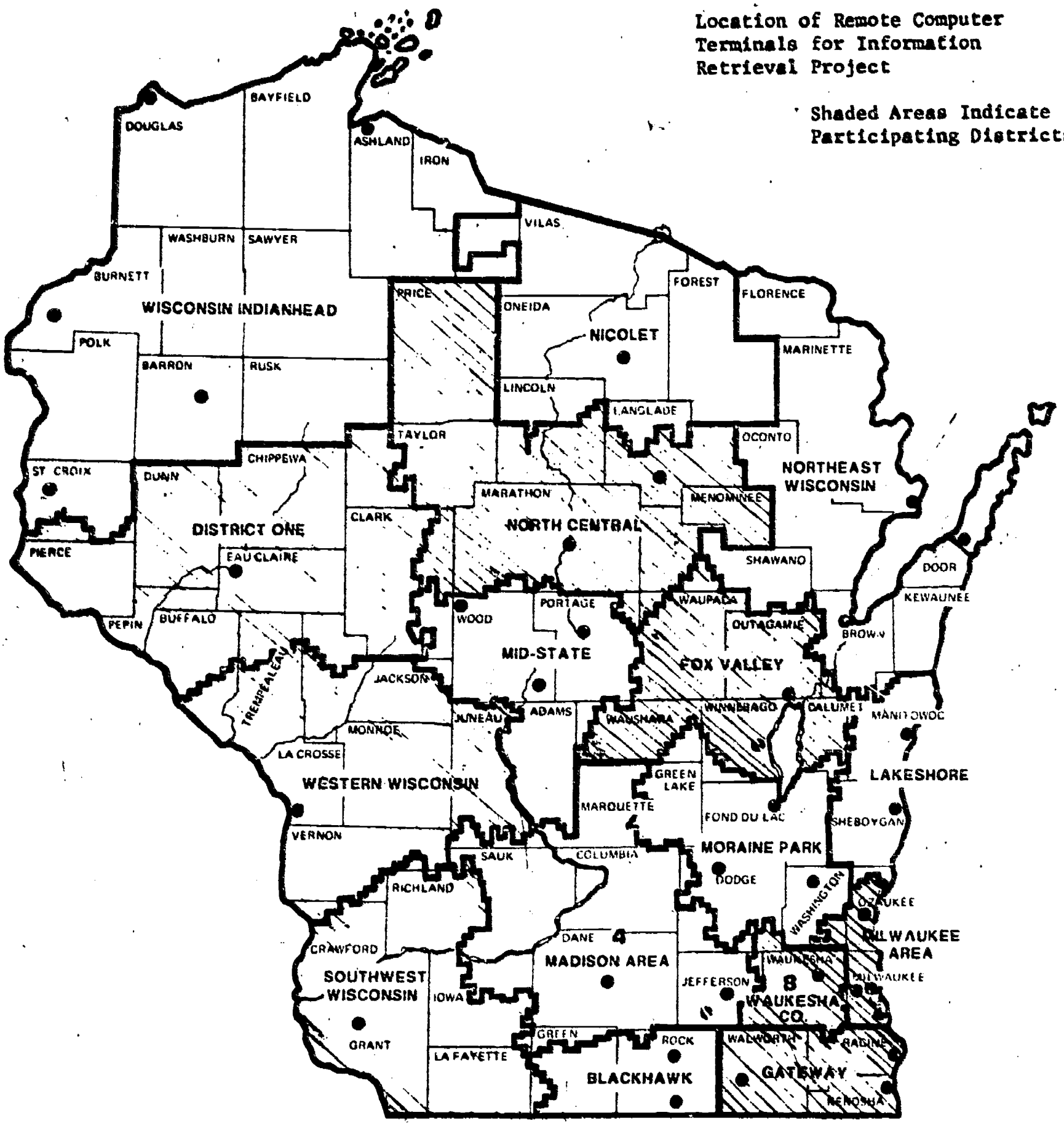
6. Continue to provide consultant assistance to individual district personnel as needed to maximize the retrieval capabilities of the system.

7. Identify alternate potential educational uses which may be made of the various computer terminals such as CVIS.

8. Establish procedures for, and train the terminal operators to use, a "mailbox" program, wherein the computer will prepare output for mailing directly to the district users.

Location of Remote Computer Terminals for Information Retrieval Project

Shaded Areas Indicate Participating Districts



Terminal Operators

State Board	- Sherman Ansell	Eau Claire	- Roxanne Graf (175)
Milwaukee	- Margaret Lutovsky (56)	Wausau	- Allen Henricks (11)
LaCrosse	- Harry Hutchison (122)	Waukesha	- Ted Laabs (84)
Fennimore	- Patricia Payson (60)	Kenosha	- Pam Anderson (35)
Appleton	- Betty Earle (15)	Racine	- Barb Greene (23)
Center for Studies in Vocational and Technical Education	- Richard Schwartz		

(Numbers indicate number of uses through June 21)

Location of Materials

ED documents in the ERIC library are available in their entirety from the ERIC Document Reproduction Service, P. O. Drawer O, Bethesda, Maryland, 20014. Libraries in Wisconsin which currently maintain ERIC microfiche collections are:

Wisconsin Board of Vocational, Technical and Adult Education, 4802 Sheboygan Avenue, 7th Floor, Madison 53705, 608-266-3705.

Department of Public Instruction Professional Library, 126 Langdon Street, Madison 53702, 608-266-2529.

Robert L. Pierce Library, UW-Stout, Menomonie 54751, 715-235-5541.

Instructional Materials Center, Education Sciences Building, UW-Madison 53706, 608-262-3580.

UW-Milwaukee Library, 2500 E. Kenwood Blvd., Milwaukee 53211, 414-228-4785.

UW-Parkside Library, Public Services Division, Kenosha 53140, 414-553-2360.

Waukesha County Technical Institute Library, 800 Main Street, Pewaukee 53702, 414-691-3200.

William D. McIntyre Library, UW-Eau Claire 54701, 715-836-3715.

Forrest R. Polk Library, UW-Oshkosh 54901, 414-235-6220.

Chalmer Davee Library, UW-River Falls 54022, 715-425-6701.

Harold Anderson Library, UW-Whitewater 53190, 414-472-4671.

The State Board Office has the capability of reproducing microfiche copies, which are available at the cost of 25¢ per microfiche card through Mr. Roland Krogstad. A microfiche card is a 4 by 6 inch sheet of microfilm on which up to seventy pages of text are reproduced; a microfiche reader is required.

GLOSSARY OF USEFUL TERMS

AIM	Abstracts of Instructional Materials in Vocational and Technical Education, a monthly publication from ERIC
ARM	Abstracts of Research Materials in Vocational and Technical Education, a monthly publication from ERIC
CIJE	Current Index to Journals in Education, a monthly publication of ERIC
CRT	From Cathode Ray Tube, a type of computer terminal with a screen display
ERIC	Educational Resources Information Center, part of the National Institute of Education
Mailbox program	A computer program whereby users of computer terminals can request the Computing Center in Madison to mail their program output to them; this allows users at remote sites to easily obtain their program results.
RIE	Research in Education, a monthly publication from ERIC
Timesharing	Simultaneous access to a computer's resources by many users
WISE-ONE	A computer program developed at the University of Wisconsin School of Education, adapted for information retrieval problems; currently in use in computer searching of the ERIC data bases--RIE, CIJE, and AIM/ARM

APPENDICES

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GENERAL INFORMATION

Introduction

Under the direction of Associate Director Roger H. Lambert, The Center for Studies in Vocational and Technical Education, University of Wisconsin-Madison, in cooperation with the Wisconsin Board of Vocational, Technical and Adult Education, the Wisconsin Department of Public Instruction, and the Madison Academic Computing Center, is conducting a series of workshops on information retrieval systems using computer terminals. Demonstrations of document searches utilizing the ERIC, ARM, and AIM document files will be given along with in-service training for interested staff in eight districts. Each of the eight districts will also receive a terminal for its use for approximately four months.

Each district has selected one key individual to serve as the terminal operator for the district, and training sessions are being held for each of these individuals. Richard Schwartz, of the Center for Studies in Vocational and Technical Education, will be conducting the training sessions and the in-service workshops.

The computer program to be used in this information retrieval project is the WISE-ONE system, created by Tom Olson, with Donald N. McIsaac and Dennis W. Spuck of the University of Wisconsin-Madison School of Education, and Roy D. Tally , of the Wisconsin Department of Public Instruction. Documentation for this system is included in this notebook.

The ~~files~~ accessible by the WISE-ONE system include the RIE (Research in Education) file, the CIJE (Current Index to Journals in Education),

and the AIM (Abstracts of Instructional Materials in Vocational and Technical Education) and ARM (Abstracts of Research Materials in Vocational and Technical Education) files.

RIE documents will have numbers beginning with the prefix ED; CIJE documents begin with EJ; AIM and ARM documents begin with VT. Each of these files must be accessed separately, and the citations found will be listed in order by their ED, EJ, or VT number. ED documents include books, technical reports or other such items; EJ documents are journal articles, with the journal volume and number cited. VT items are defined by the AIM and ARM classification - instructional materials or research materials.

Access to this data base will be through the use of computer terminals linked via telephone lines to the UNIVAC 1110 computer at the University of Wisconsin-Madison Academic Computing Center. Having terminals connected in this manner is termed "timesharing", as each user shares the computer's resources through the use of the UNIVAC 1110 EXEC operating system.

Phone transmission information can be made with these terminals at 10 characters per second or at 30 characters per second, depending on the telephone number dialed. Further information may be found within the WISE-ONE documentation.

Additional information relating to various areas of this project may be found in the remaining sections of this notebook.

1. ACADEMIC COMPUTING CENTER UW--MADISON (MACC)
1210 West Dayton Street
Director: Larry Travis
Contact: Al Roberts: 262-2054
Computers: Univac 1108 (1110 - Dec. 1973)
Univac 9300 Terminal
Univac C/SP RJE Terminal (Dec. 1973)
Microdata Concentrator COM 60

MACC is a centralized computing facility serving the instruction and research computing needs of the Madison campus as well as other units of the U.W. System. The Center's objectives are to provide low cost, easy to use facilities and services which are responsive to the diverse requirements of all segments of the academic community.

User Services include: counseling potential users, close interaction with existing users, consulting and troublshooting, application analysis, instruction and training, documentation, contract programming and keypunching.

Staff activities include developing and maintaining general purpose applications and systems software, and monitoring new equipment and technology that can be used to improve existing services, reduce costs, and enhance computing capabilities.

The Center's rate structure is designed to recover from each user only the cost of the computing resources he uses; item pricing is in effect for most facilities.

Access to MACC's computer is available at nearly two dozen remote batch I/O stations located around the Madison campus and at the other UW campuses, through dial-up timesharing keyboard terminals, and at the main I/O counter at Dayton Street.

The main computing equipment currently consists of a Univac 1108 with 1100 EXEC operating system, but in December, 1973, the system will be replaced by a 2 x 2 Univac 1110 (partitionable, dual processor, and dual I/O) increased file storage capacity and an improved data communications subsystem. New equipment includes low-cost graphic display terminals, and a Microdata data concentrator. The Center has developed general purpose software for the graphic terminals to enable them to be operated on-line to the computer 1108 (1110) via voice grade telephone lines, and located wherever convenient for users. The data concentrator will enable expansion of the number of dial-up phone ports available, will improve timesharing efficiency, user convenience and provide access to the 1110 for a variety of keyboard terminals. The Center also is developing low-cost card reader/printer terminals for users interested in establishing a remote job entry terminal to the 1110.

A booklet *Introduction to MACC* describes the facilities and services available from the Computing Center. The *MACC NEWSLETTER* is published monthly and distributed free to those interested in the Center activities and related computing developments.

I. EQUIPMENT

A. Univac 1110 (to be installed Fall 1973)

1. Main Frame

Two Command Arithmetic Units, Two I/O Access Units, 1.8×10^6 Instructions/sec.

Memory - 32K words plated wire, 393K words core, 36 bit words.

2. Peripherals

14 Ampex Disk Drives 120×10^6 - 36 bit words, 8.7×10^6 words/disk pack.

1 FH 1782 Drum 2×10^6 - 36 bit words, 17 m.s. av. access time.

4 FH 432 Drums 262K - 36 bit words, 4.3 m.s. av. access time.

8 U16 Magnetic Tape Drive 7 track, 200, 556, or 800 bpi.

1 U20 Magnetic Tape Drive 9 track, 1600 bpi (not available to users).

1 U16 Magnetic Tape Drive 9 track, 800 or 1600 bpi.

2 CRT Control Consoles

1 Communications Subsystem accommodating 22 high speed asynchronous remote batch terminals, 6-1200 bits/sec. asynchronous graphics terminals, 30 asynchronous ports for 10 and 30 cps keyboard terminals.

B. Univac Communications/Symbiont Processor - RJE Terminal (MACC I/O Area)

1 Univac Card Reader 1000 cpm.
1 Univac Card Punch 200 cpm.
1 Univac High Speed ASCII Printer.
1 Univac High Speed Band Printer (April 74).

C. Univac 9300 (MACC I/O Area)

1 Univac Card Reader, 600 cards/min.
1 Univac Line Printer (bar type), 600 lines/min.
1 Univac Card Punch, 75 cards/min.
1 High Speed Printer (connected via the 9300, 1600 lpm.

D. Other (Off-line)

1 Calcomp 750 Plotter (main machine floor).
14 026 Card Punches
13 029 Card Punches (1 interpreting)
1 056 Verifier
1 059 Verifier
1 519 Reproducing Card Punch
1 083 Sorter
1 557 Interpreter
1 407 Lister

II. SOFTWARE

A broad range of user software is supported by the Computing Center. The abbreviated list below shows major languages, programs and routines used on the 1108 (1110).

A. Languages for Developing Programs

Batch oriented operations

FORTRAN (Formula Translator)
COBOL (Common Business Oriented Language)
DITRAN (Diagnostic Fortran)
ALGOL (Algorithmic Language)
LISP (List Processing Language)
SNOBOL (String (text) Manipulation and Pattern Matching)
APT (Automatically Programmed Tools)
COBLOC (All-Digital Simulation of Analog and Hybrid Computation)
ECAP (Electronic Circuit Analysis Program)
SIMULA & SIMSCRIPT (Simulation Language)

Interactive operations

BASIC (Beginner's Algebraic Symbolic Interpretative Compiler)
APL (A Programming Language)
EDIT (For building program and data files on-line)

B. Ready to Use Programs and Routines

Indexing Systems

BIBCON (Produces Concordances and Bibliographies)
UWIS (UW Indexing System)
FAMULUS (Information Storage and Retrieval)

Library Programs and Subroutines

Approximation and Interpolation)
BUMP2 (Basic Unified Matrix Package)
Complex Matrix Procedures
Differential Equations
FORTRAN Functions (Mathematical function subroutine)
Integer and Mixed Integer Programming
IOTP (Input/Output to tape)
LP1108 (Linear programming code)
Nonlinear and Quadratic Programming
Nonlinear Regression
Numerical Integration
PERT (Program Evaluation and Review Technique)
Probability Distribution Functions
Random Number Generator
SAC-1 (Fortran subroutines for symbolic and algebraic calculation)
SIMPDX/SIMPLX (Linear programming by simplex method)
Utility Routines (Search, sort, etc.)
Zero-Finding Routines

Statistical Packages

STATJOB (The Center's primary statistical programming package)
STATLB, BMDLIB

Plotting Packages
Mailing Label Program
GRADER (for storing and assigning grades for large classes)
WISE-ONE (for logical searches of ERIC data base)

C. Data Bases

ERIC (Educational Resources Information Center uses WISE-ONE).
Early Childhood Education File (uses FAMULUS).

A comprehensive set of publications and documentation is available for the list indicated above. See MACC's SOFTWARE DIRECTORY. In addition, the Center has access to a number of other software packages through the Univac user group and other exchange organizations, and is developing a machine catalog of programs.

III. USE

Dial-up keyboard and remote batch terminals can gain access to the 1108 at these times:

Monday - 9:30 a.m. to 5:30 a.m.
Tuesday-Thursday - 8:00 a.m. to 5:30 a.m.
Saturday - 8:00 a.m. to 10:00 p.m.
Sunday - 11:00 a.m. to 10:00 p.m.

The Dayton Street I/O facilities (basement B119) are available 7:30 a.m. to 9:00 p.m. on Saturdays and 11:00 a.m. to 9:00 p.m. on Sundays.

The 1108 runs from 1000 to 4000 jobs per day. Over 90% of these jobs are in FORTRAN. STATJOB accounts for approximately 5% of the jobs. Use of the plotting facility is heavy. During the past year MACC has had over 1900 active project holders and over 14000 users, 8900 of them students.

Teletype service ends 1 hour before indicated closing time to allow for saving user files and to do necessary accounting. When the 1110 becomes operation 24 hours/day service will become available.

IV. STAFF

Approximately 72.21 full time equivalent personnel and 30-40 students are employed at the Center. Staff skills include programmers and systems analysts, user consultants, machine operators, I/O clerks, technical writers, short course teachers, keypunch operators, and other support and administrative personnel.

V. MAINTENANCE

For the 1108 and 9300, Univac has an on-site maintenance crew which performs preventive maintenance 2 hours once a week on the 1108, once monthly on the 9300, and on-call service as required. Unit Record Equipment uses on-call maintenance services as required.

WISCONSIN INFORMATION SYSTEMS FOR EDUCATION (WISE)

User Documentation WISE-ONE[1]

By:
Tom Olson
Donald N. McIsaac
Dennis W. Spuck
Roy D. Tally

Introduction

The Educational Resources Information Center (ERIC) program was designed by the U.S. Office of Education, and is now supported by the National Institute of Education (NIE) to facilitate ready access to literature relevant to education. The ERIC System center collects abstracts, classifies and catalogs this information and publishes resumes of all reports in the monthly periodical of Research in Education (RIE) and Current Index to Journals in Education (CIJE). In addition to these periodicals, ERIC produces copies of RIE abstracts and CIJE annotations in machine readable form through a subcontractor. The subcontractor, Leasco Information Systems of Bethesda, Maryland, provides the ERIC files on computer tape to subscribers on a monthly, quarterly or annual update basis.

While a manual search of the thousands of documents catalogued each month using the ERIC Journals and indexes is possible, this process is extremely time-consuming and frequently overlooks some documents. WISE-ONE, an information-retrieval system, was designed to facilitate searches of the documents catalogued by the ERIC centers and distributed as ERIC RIE and ERIC CIJE Master Tape files.

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[1]The ERIC search program - WISE-ONE - was funded by the School of Education, Department of Educational Administration, Wisconsin Information Systems for Education (WISE). Mr. S.C. Yang and Professor Venesky contributed to the development of the hashing scheme. The program was also a class project in Computer Science - CS 638 taught by Professor Travis. These contributions are acknowledged and appreciated.

Documents catalogued in the ERIC files are indexed by descriptors, identifiers and author names. Descriptors characterize the substantive content of the report and are themselves indexed in the ERIC Thesaurus of Descriptors.[2] Additional terms not listed in the Thesaurus, but which are useful in describing a particular document are called Identifiers. Catalogued information is also addressable by the last name of any author associated with it. WISE-ONE is written to search for documents catalogued under any of the these indices and will yield the ERIC Accession Number, Author and Title associated with the selected documents. In the case of journal files, the journal name, volume and page are also displayed.

The following sections of this documentation give instructions in 1) accessing the computer center with a teletype or similar remote terminal device, 2) operating the WISE-ONE System, 3) building search strategies using the ERIC descriptors and WISE-ONE command words, and 4) creating batch runs for the generation of search abstracts.

Log In

To log into the 1110 system using a teletype, it is necessary to do the following:

1. Dial (608) 263-1108. (3-1108 on the Madison campus).[3] When phone rings, place it into the acoustic coupler. If there is a busy signal, wait and dial again.

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[2] Thesaurus of ERIC Descriptors. CCM Information Corp., 866 Third Avenue, New York, N.Y. 10022. 330 p., Price; Hardcover - $8.95, Softcover - $6.95. LC Catalog No. 78-130347.

[3] The 263-1108 telephone line operates at 110 baud (10 characters per second), standard teletype speed. A 300 baud (30 characters per second) line may be obtained by dialing (608) 263-1140.

2. Type in UWTTXX. If nothing happens, retype UWTTXX followed by a carriage return; if nothing happens, hang up and go back to Step 1.

If the 1110 responds with

NO RUN ACTIVE

or

MACC 31.14 TTY UWTTNN

Enter the run card statement

"@RUN ERIC, Project #, User #" followed by a carriage return.

The 1110 will respond with the message

"PASSWORD PLEASE"

Enter your Password.

The 1110 will respond

"CONTINUE"

For a more complete description of interactive computing on the UNIVAC 1110 Computer, the reader is referred to 1110 Timesharing Guide.[4]

Operation of WISE-ONE

Once logged into the 1110, the user may invoke WISE-ONE by one of the following general statements: @WISE*ONE.WISE-ONE,(Options) RIE

@WISE*ONE.WISE-ONE,(Options) CIJE

The first requests the system to access the RIE document file. The second calls the CIJE journal file. It is not possible to search BOTH files simultaneously.

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[4]Harris, Ed. 1110 Timesharing Guide. Madison, Wisconsin: Madison Academic Computing Center, 1974.

The (Options) portion of the statement allows the user to insert a number of control codes at the time the user initiates the WISE-ONE program.

The valid options are:

H - indicates a Hazeltine terminal in use, otherwise a teletype is assumed.

P - causes the search file to be permanently catalogued, otherwise the file will be destroyed at the end of the run. When the P option is used, subsequent runs do not require the tape to be loaded, but there is a file storage charge. The cost of bringing up a data base with no permanent storage is about $13.00. The cost of daily storage of each file is about $25.00. If one anticipates four or more users in a day, the P option is recommended.

Q - checks the 1110 system to see whether the files have been previously catalogued by a P option. If the files are not catalogued, a message is printed and loading of the system from the tape library does not proceed.

T - causes the search times for each phase of the search to be printed.

7

Example 1:

@WISE*ONE.WISE-ONE,HP CIJE

This is the correct statement to execute WISE-ONE on the journal files with the following options:

1. Operate from the Hazeltine terminal.
2. Catalog the file for the remainder of the day.

Example 2:

@WISE*ONE.WISE-ONE RIE

This is the correct statement to execute WISE-ONE from a teletype on the document file with no selected options. If the file has not already been catalogued, the file will be made available for the duration of the run only.

Example 3:

@WISE*ONE.WISE-ONE,Q RIE

This statement will execute WISE-ONE from a teletype on the RIE document file IF the file has already been catalogued with a P option.

Following log-in and execution of WISE-ONE, the system will respond with a heading and then will give the user the option[5] of defining the listing parameters. Three options are available to the user and each will require a YES or NO response indicating whether or not it is desired. The first question asked of the user is:

DO YOU WANT A LISTING ON THE PRINTER?

A YES response will cause a print file to be generated for later transmission to a printer. The actual printer to be used must be specified by the user at the completion of all searches in a given run.[6] A NO response to this question will result in no record of the search being transmitted to the printer. The second question asked of the user is:

DO YOU WANT A LISTING ON THE TERMINAL?

---

[5] A "NO" response to the option of listing parameters results in the default conditions: 1) no listing on printer, 2) listing on terminal, and 3) authors and document titles included.

[6] Consult the MACC Timesharing Guide for remote site printer codes. The MACC site printer is PR12.

A YES response to this question will cause identified document or journal references to be printed on the terminal being used for the search. A NO response will cause no listing to be generated at the terminal.

DO YOU WANT THE ADDITIONAL INFORMATION?

This last question requests that the user indicate whether or not he desires the Titles and Authors to be printed on the printer and/or terminal (as specified above) along with the ERIC accession numbers (ED or EJ numbers). A response of YES will result in the Title and Author information being printed, while a NO response will suppress the printing of this information.

The three list parameters may be redefined at any point in the program by entering the command LISTP. This command calls in the sequence of listing options just described. The user is cautioned to request only a limited amount of printing on the terminal, as these devices operate at fairly low speeds and will require considerable time to print the results of a search which produced even a moderate number of references.

After the listing options have been given, WISE-ONE will then decide if it is necessary to load the search file from tape (note that the 0 option will cause the run to terminate if the file is not already catalogued). If necessary, the system will print a message and there will be a five-minute delay while the tape is loaded. When the system is ready, it will print the following message:

ERIC DATA BASE CREATED DDYYMM (Day, Year and Month file was created)

PROCEED

Immediately following the PROCEED statement, the system may be used in two ways. The user may conduct his search in an alternating two-step manner or in a continuous string manner. The two-step approach may be

thought of as alternating between a SEARCH PHASE and an ACTION PHASE. The SEARCH PHASE - the identification of desired ERIC documents according to descriptors or identifiers - is followed by an ACTION PHASE in which the user may specify what, if any, action should be taken with respect to the identified documents. Each of these phases will be discussed in turn. For clarity, the system commands introduced in the following sections are presented in the SEARCH PHASE AND ACTION PHASE order. However, the system allows one to enter all commands in any order suitable to the searcher's individual needs and style. Logically inconsistent commands elicit polite but firm messages from the system directing the searcher to enter an appropriate response.

Search Phase Commands and Logic

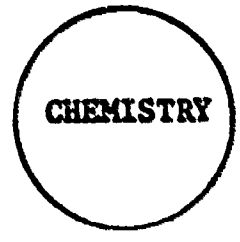
The WISE-ONE system employs Boolean algebraic functions to process information search strategies. Command words controlling the functions are AND, OR, and NAND.

The results of these commands can best be illustrated with a short explanation of basic set theory which is analogous to the way the computer processes search terms. If we enter the term CHEMISTRY: (computer response-lower case; user response-upper case)

```
    proceed
→ CHEMISTRY
    250 documents in data base
    250 documents in search queue at level 0
→ END
```

a set would be constructed of all reports that have CHEMISTRY as a key word.

The computer responses gives the number of items retrieved for the term and begins to accumulate results in a holding area called the search queue.



If we add to the logic as follows:

proceed

→ CHEMISTRY

250 documents in data base

250 documents in search queue at level 0

→ AND

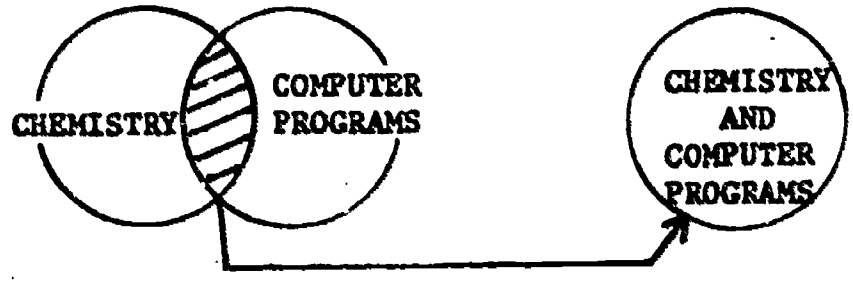
→ COMPUTER PROGRAMS

387 documents in data base

15 documents in search queue at level 0

→ END

the set for CHEMISTRY would be constructed as before and a second set constructed of items which have COMPUTER PROGRAMS as a key word. The intersection of these two sets is the final result of the logic processing, and each of the items in this set has both CHEMISTRY and COMPUTER PROGRAMS as key words.

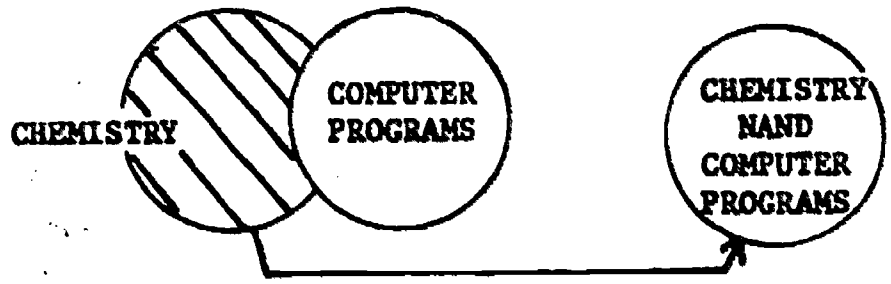


The result of the intersection is contained in the search queue following the last term.

If we change our logic as follows: (computer responses are deleted for clarity).

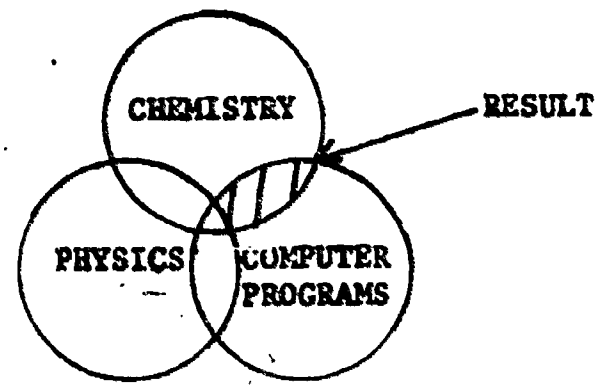
```
proceed
CHEMISTRY
NAND
COMPUTER PROGRAMS
END
```

we have taken the set, CHEMISTRY, and deleted from it the intersection with COMPUTER PROGRAMS.



Using both the AND and NAND functions together we could write the following logic.

```
proceed
CHEMISTRY
AND
COMPUTER PROGRAMS
NAND
PHYSICS
END
```

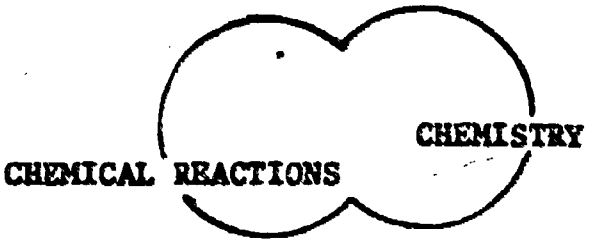


We have taken the intersection of CHEMISTRY and COMPUTER PROGRAMS and deleted from it the intersection with the set of report numbers that have PHYSICS as a key word.

To this point we have dealt with single terms separated by command words. It is often necessary to select related terms from the Thesaurus of ERIC Descriptors and combine their search results into a group for further logic manipulations. Using the example of CHEMISTRY, we may wish to add the search term CHEMICAL REACTIONS to the set CHEMISTRY: This is accomplished with the OR command:

```
proceed
CHEMISTRY
OR
CHEMICAL REACTIONS
END
```

producing a new set which contains either the term CHEMISTRY or CHEMICAL REACTIONS.



The function of combining related terms can be extended to any number desired so long as each term is followed by the OR operator.

By analogy, we may wish to extend the second concept in the sample, COMPUTER PROGRAMS. NOTE: The auxiliary commands of OPEN and CLOSE are required for this operation and fit into the sample logic as follows:

proceed

CHEMISTRY

AND

OPEN

COMPUTER PROGRAMS

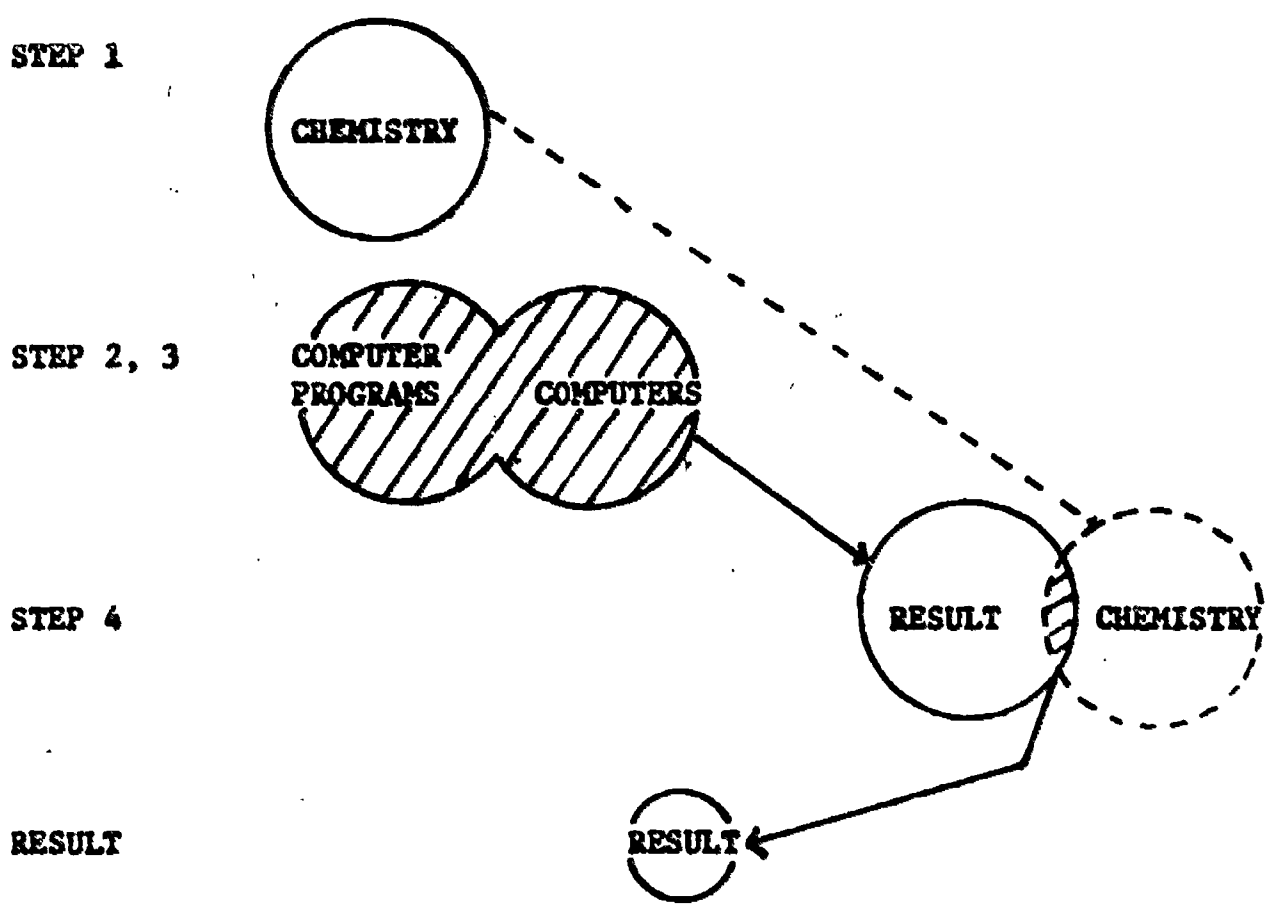
OR

COMPUTERS

CLOSE

END

The OPEN command has the effect of isolating the first set CHEMISTRY while the set COMPUTER PROGRAMS or COMPUTERS is accumulated. The command CLOSE resolves the preceding combination of sets. In effect, the OPEN and CLOSE commands are equivalent to parentheses. The term for such an enclosed set is "nested" set. Using diagrams:



The search command END has been included in the examples without comment to this point. This command signals the end of the current SEARCH PHASE and causes the computer to list the total search time required for the current SEARCH PHASE.

The SAVE command may be used to temporarily preserve search strategies or portions of search strategies. Such saved strategies may be called later in the run and combined with other descriptor terms to form new strategies or to run the same strategy on a new file. The user may enter the SAVE command at any time during the SEARCH or ACTION phases. Entering SAVE during the SEARCH phase stores all descriptor terms and logical operators entered prior to the SAVE. It is not possible to SAVE a strategy which contains a former SAVE statement.

The ADD command is required to recall a search strategy which has been previously stored by a SAVE command. The ADD command must be used during the SEARCH phase of the program. NOTE: The SAVE and ADD commands allow the user to preserve the search strategy in two forms. If the FORMULA option is used, all of the preceding descriptors and logical operators are saved. If the QUEUE option is used, the contents of the last QUEUE preceding the SAVE command are preserved. Example 1.

The user wishes to SAVE the following strategy:

COMPUTER ASSISTED INSTRUCTION

OR

COMPUTER ORIENTED PROGRAMS

OR

CAI

SAVE

(the computer response is)

queue or formula?

→ FORMULA (or F)

what is the element name?

-> CAI (the user assigns his own label up to twelve characters)

search formula CAI saved.

Example 2.

The user wishes to recall the formula.

NEXT REQUEST PLEASE

→ ADD

queue or formula?

-> FORMULA

What is the element name?

-> CAI

search formula CAI added.

(the program will begin to search the terms in the SAVE strategy automatically)

Example 3.

The user wishes to SAVE the search QUEUE for the preceding strategy.

-> SAVE

queue or formula?

-> QUEUE (or Q)

what is the element name?

-> QCAI (a unique label should be assigned)

search queue QCAI saved.

(the user may then recall the queue in the same fashion as the formula in Example 2.)

Summary of SEARCH PHASE Commands

The left arrow prompts the user to enter a descriptor, identifier or author. A summary of search results to that point is then listed. The user may then enter a search operator to expand or limit the search.

AND — The system will include in the search queue only those references which intersect with the next identifier. The search queue will contain only those listings shared by the key words both preceding and following the operator.

OR — The system will add to the present search queue all references to the descriptor which follows the OR.

NAND — The system will exclude from the search queue all references which intersect. This operation is equivalent to a "BUT NOT" logic.

OPEN — Opens a parenthetic expression and allows the user to nest his searches.

CLOSE — Used in conjunction with OPEN to close a parenthetic expression.

END — Stops SEARCH PHASE and enters action mode.

SAVE — Preserves a search queue or formula for later recall.

ADD Allows the user to add a search queue or formula that has been saved.

ACTION PHASE Commands

List Control Commands

1. LISTP Allows the user to redefine the listing parameters.

Example: The user has retrieved 99 documents, wants to review them at leisure and hasn't time to print all 99 on the teletype. (Arrow precedes the user's response)

ACTION 1 LISTP

Do you want a listing on the printer?

→YES

Do you want a listing at the terminal?

→NO

Do you want the additional information?

→YES

2. LIST List the contents of the search given in accordance with the listing parameters.

Example: The user has completed his search and wishes to print the references in accord with the options specified by the LISTP command.

ACTION →LIST

After the final title has listed the computer will return the message:

ACTION
→

3. *LIMIT — Allows the user to place an upper limit on the number of citations to be printed; initially the value is 2000.

Example: The user has retrieved 50 documents and wants to examine the five most recent.

ACTION →*LIMIT

Limit was 2000 is now 5

→LIST

4. *LOW and *HIGH — Allows the user to partition the file by document serial number.

Example 1: The user wishes to see only those documents which have an accession number greater than 30000.

ACTION →*LOW

Low limit was 0 is now 30000

→LIST

Example 2: The user wants to see results between document numbers 30000 and 50000

ACTION →*LOW

Low limit was 0 is now 30000

→*HIGH

High limit was 100000 is now 50000

→LIST

NOTE: Commas are not used to separate numerals in the above commands. Enter numerals only.

Example 3: The user has listed the five most recent documents and wishes to see the next 5.

ACTION → *HIGH

High limit was 100000 is now (enter number of last document displayed minus one. No commas!)

5. *BEFORE and *AFTER — These commands permit selection of documents which meet a desired limit of publishing date. The publishing date appears on the title listing as the last two digits of the year, i.e., 69, 69, 70. If no publishing date appears on the master tape for an item, a ∅ zero appears in the date field.

Example 1: The user wishes to see only those documents which were published during or after 1971.

ACTION → *AFTER

After date was 0 is now 71

→ LIST

Example 2: The user would like to view only those documents published from 1968 through 1970.

ACTION → *AFTER

After date was 0 is now 68

→ *BEFORE

Before data was 0 is now 71

→

6. *LIMITS — This command gives a listing of all limit settings: LIMIT, HIGH, LOW, BEFORE, AFTER.

7. *RESET Resets all limits to their initial values.

8. SEARCH Terminates the action phase and returns the message:

NEXT REQUEST PLEASE

A simple carriage return after the prompt, ACTION, will accomplish the same thing.

9. ABSTRACT The ABSTRACT command initiates a routine for creating copies of whole ERIC abstracts. Due to the volume of material involved in complete abstracts, it is not feasible to display them in the on-line mode. Rather, the system prepares the results of the on-line search for input to a batch run on the complete ERIC master tapes. Typing ABSTRACT produces the following responses.

DO YOU WANT TO BATCH THE OUTPUT?

YES - The search result is saved for printing at a later time. NOTE: This later printing may be run overnight at substantially lower rates.

NO - The system will start a special run that prints the abstracts immediately.

If YES the system responds.

WHAT IS THE NAME OF THE BATCH FILE?

The user must enter a name which will distinguish his output from others in the system, for example:

ERIC*FILE

The following responses fill in cover information and are entirely optional.

WHAT IS THE TITLE OF THE SEARCH?

(User's Choice)

WHAT IS THE SEARCH I.D. NUMBER?

(Optional - for those who wish to use their own number system. Limit, 6 digits).

ENTER YOUR NAME AND ADDRESS ON THE NEXT FIVE LINES. IF YOU DO NOT NEED A LINE ENTER A BLANK (All entries are optional).

DO YOU WANT A COVER PAGE ON YOUR OUTPUT?

(The user can request a formatted cover page with title, number, name, and address information previously entered).

DO YOU WANT THE ABSTRACT USERS GUIDE?

- (Approximately three pages of general information can be printed out at the user's option. Information on the divisions of the abstract, directions for ordering whole documents and listing of ERIC clearing houses is included.)

Following the ABSTRACT routine, the system prints out the message,

XX DOCUMENTS TO BE ABSTRACTED

to confirm the number of documents to be printed. If the user has requested an immediate printout the system prints a run number message,

STARTED RUN IS XXXXX

for reference when picking up the printout at the computer center.

10. QUIT — This command causes the termination of the WISE*ONE program and returns the user Execution of Abstracts to 1110 system control. Following this command the user may reexecute the WISE*ONE program with different file.

11. @FIN — This command must be entered if the user wishes to end his run on the terminal.

Creating A Batch Run For Abstracts

The previous section describes the procedure for setting aside the results of a search for printing of whole abstracts at a later time. When the user is asked to supply a name for the batch file, (the example ERIC*FILE was used), the system stores the appropriate reference numbers and any optional name and address information specified under the batch file name. When the batch run is created, document reference numbers are matched to the master tapes and selected numbers printed.

While many users will make a single search, file the results for an abstract run, and print the abstracts, the system allows one to store as many searches as desired under the same batch file name. Printed abstracts are then grouped as originally searched and only a single abstract run is required to print all searches.

The control cards required to print abstracts are:

@RUN,/ER name,proj.#,user#,$nn.nn,page limit

```
@ADD WISE*ONE.WISE-ONE
@ADD batch file name.
@FIN
```

The first card initiates the run and identifies the user's job to the 1110 system. The dollar limit is a safety feature which prevents the run from overrunning the user's cost expectations at the same time giving the run enough resources to finish. Allow 10¢ for each abstract to be printed. (Multiply number of abstracts by $.10.) The page limit is also a safety feature and should be about equal to the number of abstracts to be printed. The second card, @ADD WISE*ONE.WISE-ONE, must be entered just as shown. The third card, @ADD batch file name, requires that the user supply the identical name assigned earlier to batch to be printed. The fourth card is the final card in the deck and signals the end of the job to the system.

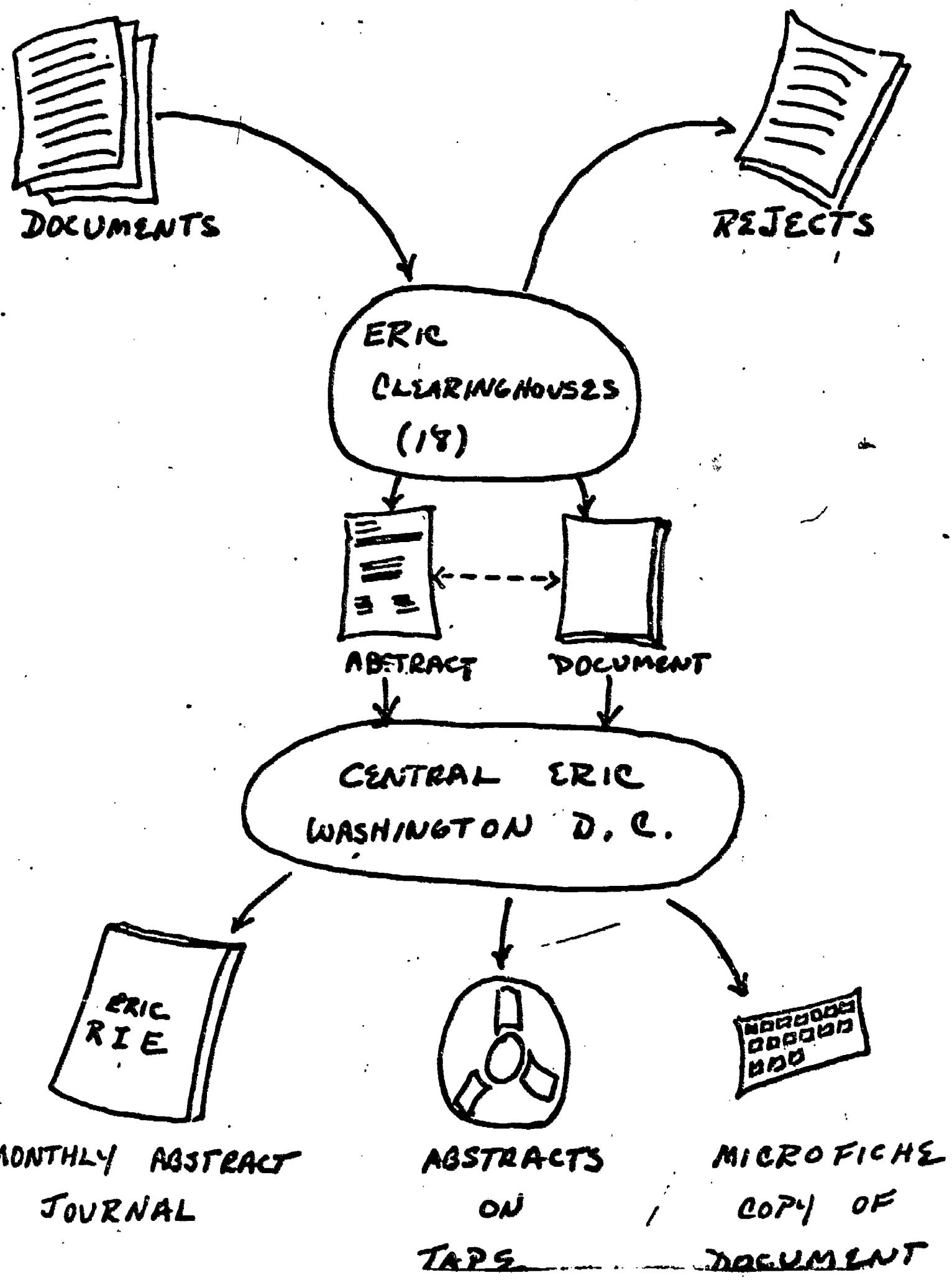
To execute a batch run at the Madison Academic Computing Center:

1. Go to room B119 of the Madison Academic Computing Center, 1210 W. Dayton Street to punch the required cards using the keypunch machines available.
2. Submit the cards to the I/O clerk at the window. Ask that the job be run DEFFERED if you wish to have the abstracts printed overnight.
3. Return the next day, present the receipt card to the clerk to receive the abstract printout.

NOTE: If you desire to print abstracts, submit the run the same day you complete your search(es), as the batch file will be automatically destroyed the next morning.

COPIES OF OVERHEAD PROJECTIONS

WHAT IS ERIC?


DOCUMENTS
REJECTS
ERIC
CLEARINGHOUSES
(18)
ABSTRACT
DOCUMENT
CENTRAL ERIC
WASHINGTON D.C.
ERIC
RIE
MONTHLY ABSTRACT
JOURNAL
ABSTRACTS
ON
TAPE
MICROFICHE
COPY OF
DOCUMENT

Sample Search Request

SEARCH REQUEST FOR J.R.

CLIENT IS WORKING IN CURRICULUM DEVELOPMENT.
A SCHOOL DISTRICT WISHES TO CREATE A COURSE
DEALING WITH ENVIRONMENTAL POLLUTION IN A LARGE
URBAN COMMUNITY AND THE PROBLEMS INVOLVED.
COURSE IS TO BE GIVEN TO HIGH SCHOOL STUDENTS.

BACKGROUND MATERIAL IS NEEDED.

AROUND TWENTY-FIVE REFERENCES WOULD BE ADEQUATE.

Identifying Key Concepts

SEARCH REQUEST FOR J.R.

CLIENT IS WORKING IN CURRICULUM DEVELOPMENT.
A SCHOOL DISTRICT WISHES TO CREATE A COURSE
DEALING WITH ENVIRONMENTAL POLLUTION IN A
LARGE URBAN COMMUNITY AND THE PROBLEMS INVOLVED.
COURSE IS TO BE GIVEN TO HIGH SCHOOL STUDENTS.

BACKGROUND MATERIAL IS NEEDED.
AROUND TWENTY-FIVE REFERENCES WOULD BE ADEQUATE.

E R I C T H E S A U R U S

URBAN AREAS

UF LARGE CITIES

NT METROPOLITAN AREAS

MUNICIPALITIES

SUBURBS

URBAN SLUMS

BT GEOGRAPHIC REGIONS

RT RURAL URBAN DIFFERENCES

URBAN CULTURE

URBAN EDUCATION

URBAN ENVIRONMENT

URBAN IMMIGRATION

URBANIZATION

URBAN LANGUAGE

URBAN POPULATION

URBAN RENEWAL

URBAN RENEWAL AGENCIES

URBAN SCHOOLS

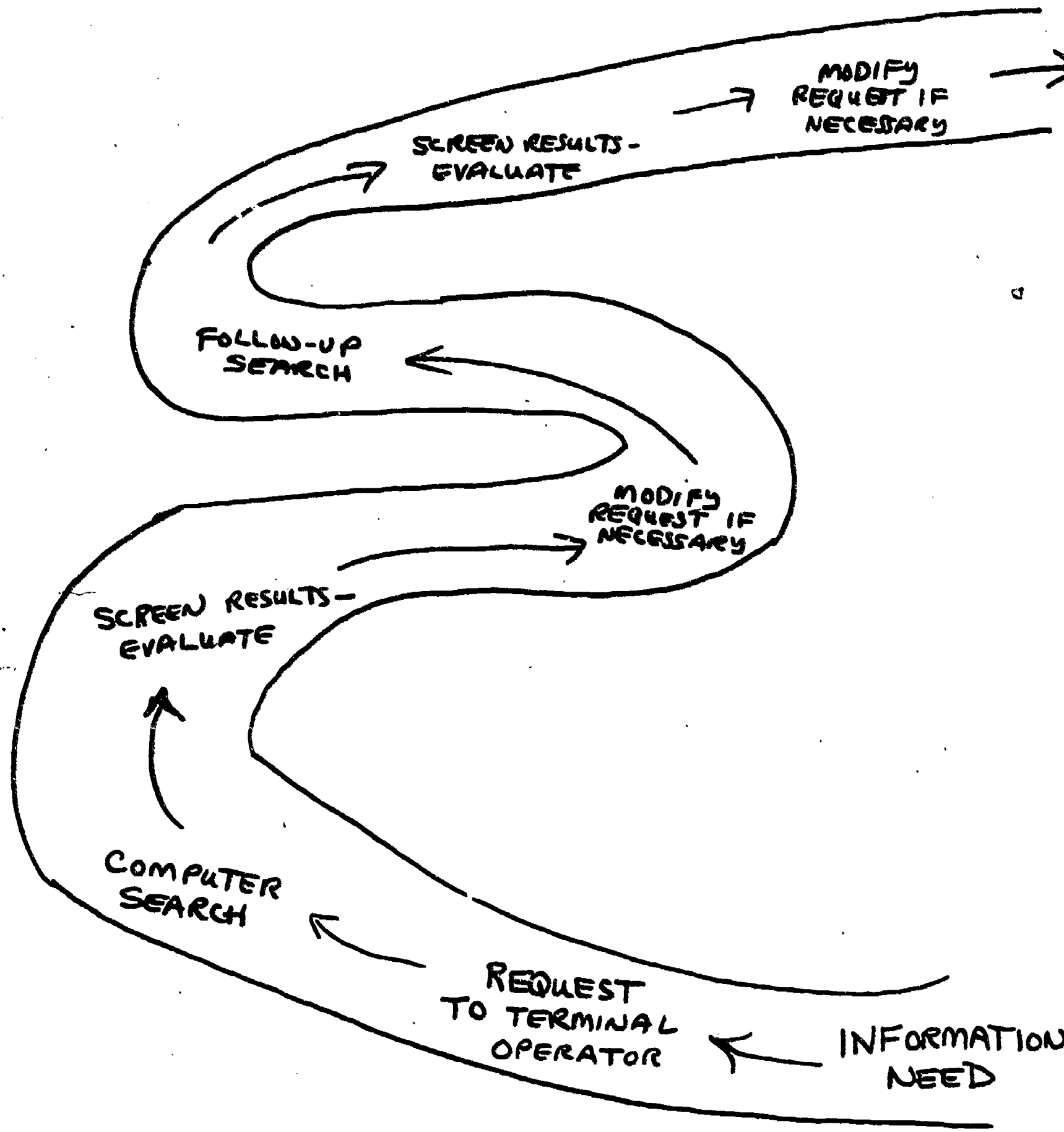
URBAN TEACHING

URBAN UNIVERSITIES

URBAN YOUTH

SELECTING SEARCH TERMS

ENVIRONMENTAL POLLUTION	URBAN PROBLEMS
POLLUTION	URBAN AREAS
AIR POLLUTION CONTROL	METROPOLITAN AREAS
WATER POLLUTION CONTROL	URBAN ENVIRONMENT
ECOLOGICAL FACTORS	URBANIZATION
	CITY PROBLEMS
	CITY IMPROVEMENT



ERIC SEARCH PLAN

72 ED 70813
COX, DAVID C.; ; ;
HOW TO INVESTIGATE THE ENVIRONMENT IN THE CITY; ZIP AND GATE
R.; ;

71 ED 64537
KOELLI
APEX (AIR POLLUTION EXERCISE) VOLUME 8; INDUSTRIALISTS MANU
AL NO. 3, RUSTYS IRON FOUNDRY.; ; ;

71 ED 64532
KOELLI
APEX (AIR POLLUTION EXERCISE) VOLUME 3; AIR POLLUTION CONTRO
L OFFICERS MANUAL.; ; ;

71 ED 64531
KOELLI
APEX (AIR POLLUTION EXERCISE) VOLUME 2; COMPUTER OPERATORS
MANUAL.; ; ;

71 ED 64530
KOELLI
APEX (AIR POLLUTION EXERCISE) VOLUME 1; GAME DIRECTORS MANU
AL.; ;

70 ED 61130
DUKE, RICHARD D.; AND OTHERS;
GAMING-SIMULATIONS IN THE TEACHING OF URBAN SOCIOLOGY.

71 ED 56144
BURCH, WILLIAM R., JR.;
THE PEREGRINE FALCON AND THE URBAN POOR, SOME SOCIOLOGICAL I
NTERRELATIONS.; ;

71 ED 55013
ALLEN;
PROJECT CANADA WEST, CANADIAN ENVIRONMENTAL CONCERTS.;

70 ED 51012
ICED I
A CURRICULUM GUIDE IN ELEMENTARY SOCIAL STUDIES; MAN AND HIS
INSTITUTIONS, GRADE THREE.; ;

70 ED 44600
SMITH,
WHERE THE ACTION IS; A LOG OF SUCCESSFUL URBAN PROGRAMS INVO
LVING BUSINESSMEN, CHAMBERS OF COMMERCE OR ASSOCIATIONS.; ;

70 ED 41737
MCRAN, WILLIAM E., JR., ED.; ;
POPULATION BULLETIN, VOLUME 26, NUMBER 2.;

70 ED 40867
ANTHONY
AIR CONSERVATION, THE REPORT OF THE AIR CONSERVATION COMMISS
ION.;

70 ED 39205
MCORE, JOHN A.; ;

SAMPLE ABSTRACT

BEST COPY AVAILABLE

REPORT NUMBER ED070864

TITLE VALIDATION OF CURRICULUM IN VOCATIONAL-TECHNICAL EDUCATION.

AUTHOR(S) HALL, JAMES E.

NOTE 39P.; PRESENTATION AT THE INSTITUTE FOR CURRICULUM PERSONNEL DEVELOPMENT (FT. COLLINS, COLORADO, OCTOBER 26, 1972)

PUB DATE OCT 72

ABSTRACT
VALIDATION IN CURRICULUM DEVELOPMENT IS THE 'CHECK-AND-BALANCE' DIMENSION OF ANY INSTRUCTIONAL SYSTEM, IN THE BROADEST SENSE ALMOST SYNONYMOUS WITH EVALUATION AND ACCOUNTABILITY. THIS PAPER RELATES VALIDATION TO INDIVIDUAL, FORMATIVE, AND SUMMATIVE EVALUATION. VALIDATION MEASURES TO BE APPLIED TO INSTRUCTIONAL SYSTEMS ARE OUTLINED ACCORDING TO A 12-POINT MODEL REPORTED BY F. COIT BUTLER. CURRICULUM DEVELOPMENT IS CONCERNED WITH CRITERION-REFERENCED TESTS (CRT) AND THE CRT IS CENTRAL TO ALL VALIDATION EFFORTS. THE PAPER DISCUSSES VALIDITY OF THE CURRICULUM GENERALLY AND OF THE CRT SPECIFICALLY WITH REFERENCE TO RELIABILITY AND OTHER FACTORS. THE APPENDIX CONSISTS OF INSTRUCTIONAL SYSTEMS DEVELOPMENT CHARTS FROM VARIOUS SOURCES. (MF)

DESCRIPTORS
CHARTS
CURRICULUM DEVELOPMENT
INSTRUCTIONAL DESIGN
MODELS
SYSTEMS DEVELOPMENT
VALIDITY
CRITERION REFERENCED TESTS
FORMATIVE EVALUATION
INSTRUCTIONAL SYSTEMS
SUMMATIVE EVALUATION
TEST RELIABILITY
VOCATIONAL EDUCATION

SAMPLE FORMS USED

REQUEST FORM

Date _____ Sequence # _____

Person Requesting Information _____

Title _____

Address _____ Phone _____

Is this your first request? ___Yes ___No

What is the title or major subject area of your request? _____

Which of the following levels (if any) apply to your topic? (Check all that apply)

___Primary
___Intermediate
___Elementary
___Secondary
___Junior College
___Graduate
___Higher Education
___Adult
___Professional
___No Level
___Other (specify)
_____

What is the general purpose of your information search?

___Proposal Development
___Project Operation
___Curriculum Development
___Administrative Management
___Instructional Improvement
___Thesis/Dissertation
___Course Review of Literature
___Inservice Training
___School/Community Relations
___Other (specify)
_____

What type of materials are you most interested in?
(instructional materials, reports, etc.)

How many references do you expect or prefer?

___Up to 10 ___Up to 25 ___Up to 50 ___Up to 75 ___Over 75

Please write a detailed statement describing your specific information needs in your own words, considering the information indicated by your choice as checked. Be specific as possible. Use additional sheets if necessary.

If possible, list authors' names, project/program titles, ERIC abstracts (ED numbers), descriptive terms, and any other pertinent information which may be helpful search keys to the retrieval staff.

Type of output desired: ___ID numbers only ___Citations ___Abstracts

Sequence # _____

SEARCH WORKUP FORM

Concept 1. _____

Concept 2. _____

Concept 3. _____

Descriptors (1)	And;Or	Descriptors (2)	And;Or	Descriptors (3)

Comment:

Sequence # _____
User # _____

Computer Run Report
Project #

Run ID _____ Time _____ Date _____

Work Description	number of citations found RIE	CIJE	AIM/ARM	Comments

run cost $ _____

Output Received: _____ (date) Citations ☐ Abstracts ☐

Follow up by phone within a week of search completion:

Did the search results meet your needs and specifications? _____

Was there a benefit to your project due to using the computer search?

☐ large amount ☐ small amount ☐ none ☐ loss

How many of the citations found were relevant to your project? _____

Comments:

CENTER FOR STUDIES IN VOCATIONAL AND TECHNICAL EDUCATION, UNIVERSITY OF WISCONSIN-MADISON

The Center for Studies in Vocational and Technical Education at the University of Wisconsin-Madison was reorganized with the support of the Wisconsin Board of Vocational, Technical and Adult Education within the School of Education in 1971. The function of the Center is to serve the State of Wisconsin in a unique way by bringing the resources of the University to bear on identified problems in the delivery of vocational and manpower programs--vocational education, technical education, adult education, career education, manpower training--to citizens of all ages in all communities of the State. The Center focuses upon the delivery of services including analyses of need, target groups served, institutional organization, instructional and curriculum methodology and content, labor market needs, manpower policy, and other appropriate factors. To the extent that these goals are enhanced and the foci of problems widened to encompass regional and national concerns, the Center engages in studies beyond the boundaries of the State.

Merle Strong, Director
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