The University of New Mexico (UNM) General Library supports the locally-managed ERIC search service. During the 1973/1974 fiscal year, more than 3,000 searches were processed by the UNM Division of Computer and Information Science using a specially developed retrieval program, GANDALF (General Alpha-numeric Direct Access Library Facility). This document is intended as a guide to users of the ERIC/GANDALF system. Included is an overview of the system, instructions for formulating a search, specific procedures for submitting the search, and a guide to interpreting the search results. In addition, the script from a 10 minute slide-tape presentation on "Searching the ERIC Data Base" is provided in the manual. (DGC)
SEARCHING THE ERIC DATA BASE AT UNM

by Sandra H. Neville

The University of New Mexico General Library supports the locally-managed ERIC search service. Support is provided by the purchase of quarterly update tapes for RIE and CIJE, and the wage for a part-time programmer, who updates the tapes and maintains the program.

The UNM Division of Computer and Information Science developed the retrieval program, called GANDALF - General Alpha-Numeric Direct Access Library Facility. The program is computer efficient; it takes less CPU time than other well-known retrieval programs. This is important, because the Computing Center would be unable to allocate sufficient time required by other programs. GANDALF is not as retrieval effective as other programs when processing complex search logic.

Over 3,000 searches were processed from the General Library during F 73/74. Additional searches were processed from other terminals on campus - an estimated 2,000. The output is limited to 100 references, unless special request is made to the reference librarian. A maximum of 475 references per search can be returned if the user has a valid reason, such as thesis or research paper. Single descriptor searches are discouraged, because the printed indexes can be used for this type of request. This batch-mode, computer-based reference service returns a print-out with a 24 hour turn-around time.

The service is free to students and faculty; the library costs (excluding reference librarian assistance and computer time) are $1.50 per search. The teletype is already on board in the Interlibrary Loan office; keying the searches takes about 30 minutes per day by a non-professional member of the staff. Computer use costs are paid from a university budgeted item, not in the library budget. Those costs are available upon request.

Two sections follow: ERIC/GANDALF User's Guide (available at the Reference Desk and in print-out form when requested by the user from the computer stored file.) Searching the ERIC data base (slide-tape presentation used in the Reference Dept. to train ERIC users wishing to submit a computer search request.)
I. Introduction

ERIC (Educational Resources Information Center) provides RIE (Research in Education), an indexed set of documents, briefs, and abstracts containing two elements, 1) the document resumes (abstracts) of 100-300 words, and 2) the microfiche* collection in Zimmerman Library. The ERIC collection is based on the thousands of projects sponsored by the U.S. Office of Education's Research Branch. Beginning in 1960, each researcher submitted both his final report and a 100-300 word abstract; an ERIC search retrieves these abstracts.

CIJE (Current Index to Journals of Education) is an indexed set of references to articles in current educational periodicals. CIJE gives descriptors, authors, titles, etc. of articles appearing in over 450 education journals since 1969 and may give a 30 word abstract.

The abstracts and articles can be examined in published indexes; over 80,000 RIE and 40,000 CIJE documents are printed in many volumes.

Searching this information is arduous; automation and computer use can facilitate these searches. This article shows how to let the computer find the needed material from RIE and CIJE. The collection of abstracts and titles have been stored on the University of New Mexico computer which is located in the Computing Center, 2701 Campus Blvd., Albuquerque, New Mexico.

*Microfiche: a 3 x 5 film containing up to 64 pages, read by using a microfiche reader, such as those available in Zimmerman Library.
Unless otherwise specified (see options), RIE and CIJE collections will be searched for the following periods:

- RIE (documents) 1969 - present
- CIJE (journal articles) 1971 - present

The ERIC search service uses a retrieval program, called GANDALF (General Alpha-numeric Direct Access Library Facility). GANDALF was developed by the UNM Division of Computing and Information Science.

II. Formulating the search

Before you begin a computer search, take time to learn about the published indexes - CIJE (Current Index to Journals in Education), RIE (Research in Education). These printed indexes have the same information as the Computer database. If you only have one term and need a few references, the manual search is faster than a computer search. Also, finding one or two references of interest in the printed index helps to formulate good computer searches. Descriptors and identifiers listed with those references are prime candidates for your computer search request. Your computer search will be better if you select terms from relevant articles found in a manual search.

All terms selected for a computer search request should be checked in the Print-out of ERIC Descriptors and Identifiers. This is different from the published thesaurus and is distinguished by its format on computer print-out paper. The published thesaurus is in a familiar book form and has one major feature which is useful in formulating a computer search -- the permuted index. This part of the published thesaurus lists all words in alphabetical order, regardless of their position in the phrase. 'Rural Urban Differences' would appear alphabetically three places, one place for each word in the phrase. Doublecheck every phrase or term found in the computer print-out. Also, be sure to note the Print-out of Authors; names may be selected from this list and compared with terms in the print-out of ERIC descriptors and identifiers.

Notice the numbers beside the descriptors and identifiers or authors. These indicate the primary (P:) or secondary (S:) content emphasis, and the number of references the term will retrieve. This is a type of weighting device which should influence the formulation of your search. If too many references will be retrieved, your search may not be specific enough.

To formulate the search connect the terms you have selected with words called operators. These are: AND, OR, BUT NOT.

AND - Connect terms with AND when you want all terms associated with each reference returned.
EG: HUMOR AND LEADERSHIP QUALITIES
All references returned will have BOTH descriptors ('HUMOR,' LEADERSHIP QUALITIES) associated with each reference.

OR - Use OR when you wish to compare only one of several terms with a term on the other side of AND.

EG: LAUGHTER OR HUMOR AND LEADERSHIP QUALITIES
All references returned will have the descriptor, LEADERSHIP QUALITIES, and either, HUMOR OR LAUGHTER, as descriptors associated with each reference.

BUT NOT - Use BUT NOT when you distinctly wish to eliminate a group of references which may use a descriptor out of the range of your topic.

EG: BLACK POWER AND BLACK COMMUNITY BUT NOT BLACK PANTHER PARTY
All references returned will have descriptors, BLACK POWER and BLACK COMMUNITY; any references with these descriptors and BLACK PANTHER PARTY will be eliminated.

P: S: - Use these codes before each term when you wish to limit the search to a primary or secondary content emphasis.

EG: P:RURAL EDUCATION AND RURAL SCHOOLS
References returned will have primary use of the descriptor, RURAL EDUCATION, associated with all uses of the descriptor, RURAL SCHOOLS.

( ) - Use parenthesis for more sophisticated searching to group several terms for comparison with several other grouped terms.

EG: (LEADERSHIP QUALITIES AND HUMOR OR LAUGHTER) AND (ORTEGO, PHILIP D. OR ORTEGO, PHILLIP D.)
The first set of parenthesis groups the content of the request and matches that result with the author - notice that the author's name was spelled two ways in the print-out. Both should be used.

RESTRICTIONS:

1 - GANDALF will print only the first 20 abstracts if the number of abstracts to be printed exceeds 100. Notice the number of references beside each term selected for searching; try to narrow the search if too many references (100 or more) might be returned.

2 - If terms to be compared have many references indicated, AND two descriptors first which have one of the descriptors with a very low number of references. This will cause GANDALF to find a low number of references returned early in the processing of your request and not give you the default of 20 abstracts. After pairing a high number descriptor with a low number descriptor, continue to AND other high number descriptors as the final part of your search request.

EG: RURAL EDUCATION AND RURAL EXTENSION AND RURAL SCHOOLS
RURAL EDUCATION and RURAL SCHOOLS have a high number of references; a search request beginning with these two descriptors would exceed 100 and return a default report. The descriptor, RURAL EXTENSION, has a low number of references and the comparison is made first between it and RURAL EDUCATION. The rest of the search continues to process without default.

3 - More than two ANDS may eliminate all relevant references. Limit the number of ANDS used in one search to assure good retrieval.

4 - Use OR sparingly. Single descriptor searches are discouraged; Manual searches are better when only one term is used. BUT NOT is tricky and should not be used for your first few searches; it can eliminate relevant references.

5 - Descriptors with imbedded ANDs (EG: 'TRADE AND INDUSTRIAL EDUCATION' - one descriptor) will not work on GANDALF.

6 - Certain types of extensive searches confuse GANDALF. Start with simple searches, and test more complicated ones when you have had more successful results.

III. SUBMITTING THE SEARCH

There are three ways to submit a search request after you have completed formulating the search. You may submit PUNCH CARDS, TERMINAL SEARCH, or REQUEST FORM.

PUNCH CARDS -

System cards

Four cards are needed to tell the computer the work expected and two additional cards are needed to let the machine know when the work is done. Always begin punching system cards in column 1.

Job card

The job card tells the computer and the operator about the work to be done and must be prepared on the UNM pink job card form. The letters below various segments are keys to further explanations that follow the sample:

Card columns

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

//JJS34A JOB (USERNO,SSAN,20),SMITH,REGION=234K,TYPRUN=HOLD
A   B   C   D   E   F   G
A. The two // tell the machine that work is on the way.
B. Your 3 initials. If you only have 2, invent a third.
C. Use the last two digits of your social security number plus some letter.
D. Your accounting or job number. Get this from an instructor.
E. The last 4 digits of your social security number.
F. This is the time in CPU seconds which your job will be allowed to run, most GANDALF jobs will execute in 20 CPU seconds or less.
G. Your last name should be less than 12 characters. If it is longer than 12 characters, use only the first 12 characters.

NOTES:

1

6 Denotes card column 16, etc.

The commas, blank spaces, etc., must be exactly as in the sample. Items B and C must have a combined length of 6 characters.

You may notice that the restrictions in the job name and programmer name fields are different than on other OS jobs, because of the way GANDALF jobs are run the different restrictions are necessary.

Some written entries are necessary to tell the operator about the storage volume that must be available to provide GANDALF to your job. In the lower left quadrant of the pink job card form, write "APPLO1' under 'NAME' and '2314' under 'UNIT'. Print this information clearly, if this information cannot be read by the operator, your job may not run.

Exec card

This card tells the machine that you want to run an ERIC search.
Copy it exactly.
//STEP1 EXEC GANDALF

Sysin card

It's prepunched in College of Education's keypunch room, or you may punch it yourself. Copy it exactly.
//SYSIN DD *

Dollar card

This card is very much like the job card described above, the differences lie in the substitution of the dollar signs for the //, and the color - it is not pink.

$$JJS12L JOB (USERNO,SSAN,20),$MITH,REGION=234K,SYPRUN=HOLD
The two end cards

//
/*
This last one must be a prepunched blue card. The are available prepunched at the Computing Center.

Notes: colors of cards.

The job card must be punched on the Computing Center's pink job card form.

The final /* is prepunched on a blue square cornered card available at the Computing Center and in the College of Education keypunch room.

All other cards can be of any color, as long as they are not the special pink and blue card forms.

Here's a sample set of system cards:

//STS12L JOB (USERNO, SSAN, 20), SMITH, REGION=234K, TYPRUN=HOLD
//STEP1 EXEC GANDALF
//SYSIN DD *
$$STS12L JOB (USERNO, SSAN, 20), SMITH, REGION=234K, TYPRUN=HOLD
   Search cards put here by the user
   //
   */ (on a blue, square cornered card)

Search cards

1st card - SEND TO 'YOUR NAME' (Begin in the first column of the card)
2nd card - (The actual search - punch your search as formulated from instructions in Section II. Searches may be continued on as many cards as needed, but do not divide words of a descriptor between two cards.)

Last card - THAT'S ALL

Insert the search cards into the pack of system cards just before the last two cards: // ; /* .

TERMINAL REQUEST -

If a terminal is available to the user, a simple procedure submits the search for processing. It is assumed that the reader has some knowledge of CALL-OS.
Sign on to a terminal and enter the following commands:

LOA **GANDALF**

REP A/USERNO./XXXYYY/ (Where XXXYYY, insert your 6 digit user number)

REP A/SSAN/1234/ (Where 1234, insert the last 4 digits of your social security number)

SAV NAME1

CLE

100 SEND TO 'YOUR NAME' (Insert your name in the proper slot)

110 (The actual search - instructions for formulating a search are in Section II. Make sure you do not put in more than 80 characters to a line or your search will not run. You may use as many lines as required. Each line must begin with a line number followed by one blank. Number your lines sequentially in ascending order.)

120 THAT'S ALL

998 //

999 /*

SAV NAME2

SUB NAME1,NAME2

OFF

OPTIONS

FILE

NAME

GAND1 .......... RIF documents, 1969 - present

GAND2 .......... CIJE journal articles, 1971 - present

GAND3 .......... RIE documents, 1973 - present

GAND4 .......... CIJE journal articles only, 1973 - present

REQUEST FORM

Request forms for ERIC searches are available in the General Library reference area. Students and faculty may fill out the forms and give them to the reference assistant. The searches will be submitted by library staff; the requester may pick up the search at the reference desk 24 hours later.

SAMPLE JOB

Here is a set of cards ready to be submitted to the Computing Center:

//JJS07X JOB (USERNO,SSAN,20),SMITH,REGION=234K,TYPRUN=HOLD
//STEP1 EXEC GANDALF
//SYSIN DD *
$JJS07X JOB (USERNO,SSAN,20),SMITH,REGION=234K,TYPRUN=HOLD
SEND TO J. SMITH
SECONDARY SCHOOLS AND TESTING AND SCIENCE
THAT'S ALL
/
/*

For best results submit one search per job.

IV. SEARCH RESULTS

Searches are picked up at the Computing Center in the dispatch area, if your search was submitted on punch cards or at a terminal. Look for your search in the box with the same digits as the last two digits of your social security number. For searches submitted on a request form at the General Library, check at the reference desk in the library.

The output returned will consist of two parts - the preliminary report, the final report. The preliminary report details the search process and reports the number of references returned. The final report is the references and citations; it may be five sections. Check the number of references returned as reported in the preliminary with the actual number of references in the final report. Re-run the search if there is a difference, and there is no statement on the preliminary explaining why your search did not succeed.

ERROR MESSAGES FROM GANDALF

The following error messages are warnings. Your search will process, but errors should be corrected on future searches.
'SEND TO' - MISSING FROM REQUEST
'THAT'S ALL' - MISSING FROM REQUEST OR PUNCHED IN WRONG COLUMN
UNIDENTIFIED REQUESTER - (name was not placed after SEND TO)
'SEND TO' - DOES NOT START IN COLUMN 1
USER NAME SHORTEN TO: _____ - (when name exceeds 12 characters on job card, it will be truncated.)

The following error messages will cause your request to fail. Check your request with the users' guide, make corrections, and resubmit the search request.

SYNTAX ERROR - INVALID SEQUENCE OF ELEMENTS.
SYNTAX ERROR - INVALID FIRST ELEMENT OF REQUEST (check system cards)
SYNTAX ERROR - EXTRA RIGHT PARENTHESIS.
ERROR DETECTED IN REQUEST SUBMITTED BY . 20 A4 (check system cards)
FIRST CARD NOT JOB CARD

A complicated search may cause the following messages to appear. Simplify or break up your search request when these messages appear.

BOBO
ERROR IN POLSTR

Other error messages require attention from the programmer. Notify the reference assistant when these appear.

ERROR IN BOOLEAN, II= , STACK = .
INVALID BLOCK NUMBER
THE ABOVE REQUEST IS REALLY AN ERROR AND SHOULD BE IGNORED.

A slide-tape presentation, Searching the ERIC data base, is available for viewing in the Reference area of the UNM General Library.
SEARCHING THE ERIC DATABASE

Slide-tape presentation; 33 slides, 10 minutes

1) Terminal performance objectives
2) Content outline
3) Script
4) Instruction guide

Prepared by: Sandra H. Neville
(for use at the University of New Mexico General Library
dersigned for the locally-managed, computer-based
ERIC search service which uses a locally-developed
access program called, GANDALF.)
Terminal performance objective:

UNM General Library users will be able to write a search request for and interpret results from the ERIC data base, using the computer search service offered by the Reference Dept. Upon completion of this slide-tape presentation, the user will be able to complete a search producing a print-out with valid references - ones which apply to the subject of the search request.

Enabling objective 1 -
Given the descriptor and identifier lists, prepare a one subject search and a multiple (more than one term) subject search which correctly uses the operators (connecting words) - AND, OR.

Enabling objective 2 -
Given the printed indexes (CIJE, RIE) find a reference for a document and for a journal article using the subject search (one descriptor) for both RIE and CIJE.

Enabling objective 3 -
Given the request form and a multiple subject search, fill in a search request by correctly using the connecting words (AND, OR) for grouping terms. Also, indicate the type of search option required.

Enabling objective 4 -
Given the print-out, correctly interpret results, by noting the number of references found and by locating within the library documents and journal titles indicated in the references found.
CONTENT OUTLINE - SEARCHING THE ERIC DATA BASE

I. What is ERIC?
   A. Brief description of the whole data base, Clearinghouses, etc.
   B. Brief description of local data base, GANDALF.

II. Selecting terms for search requests
   A. Descriptors, identifiers, author names
      1. Descriptors
      2. Identifiers
      3. Authors
   B. Using the Thesaurus list
      1. Print-out list
      2. Published Eric list
   C. Operators (connecting terms)
      1. Boolean logic - very brief
      2. AND, OR,

III. Manual search
   A. Printed indexes
      1. HIE
      2. CIJE
   B. Advantages of a manual search

IV. Computer search
   A. Advantages of a computer search
      1. Multiple subject parameters
      2. Exhaustive
   B. Disadvantages of a computer search
      1. Dependence on rigid language interpretation
      2. No refinement during search
   C. Filling out the request form
      1. Name and purpose of search data
      2. Search options
      3. Writing the search terms to say what you mean to say

V. Interpreting results of a computer search
   A. Print-out
      1. Preliminary information
      2. References - where to find
   B. Refining search
      1. Evaluating results
      2. Developing a new search based on results of previous manual
         and computer searches
SEARCHING THE ERIC DATA BASE

1. Title

Searching the ERIC data base is a method used to get or retrieve references stored on magnetic tape and accessed through a computer.

2. Medium shot of index tables with question mark.

What is ERIC? It stands for Educational Resources Information Center. ERIC represents the work of many Clearinghouses across the United States. Documents and articles are gathered, indexed, and inserted into the data base by these clearinghouses. Indexing means that essential information such as authors, titles, and subject headings are collected in a way that helps you find the original articles.

3. Interior view of Computer Center medium shot of operator holding disc.

Through a cooperative effort, the General Library and the UNM Computer Center offer the ERIC search service. This computer-based bibliographic information system uses a program called GANDALF, which was developed locally by the Division of Computer and Information Science.

4. Medium shot of index table.

Before you begin a computer search, take time to learn about the published indexes - CIJE, RIE. These indexes have the same information (which will be called references) as the data base on magnetic tape.

5. Close-up of both CIJE, RIE open to references.

Citations and abstracts are arranged in a number order and are indexed within the volume by subject and author. If you have one subject and need a few references, the manual search is faster than a computer search.

6. Close-up of both CIJE, RIE open to references, with arrows.

Notice the descriptors and identifiers in the published indexes. Your computer search will be better if you select terms from relevant articles found in a manual search. Doublecheck these terms in the descriptor print-out.
7. Close-up of descriptor and identifier paragraph in reference in RIE.

A manual search will allow you to read abstracts and decide whether a computer search is required. Always do a manual search before considering a computer search.

8. Close-up of a person consulting the indexes.

A computer search is most successful when the topic has more than one parameter, requiring several descriptors and identifiers. Also, the need for exhaustive searching - an extensive list of references for thesis or term papers, would justify a computer search.


The list of descriptors and identifiers is a list of acceptable terms and is available on the index table. A separate list of authors is also on the index table. Both are computer print-outs. All terms used on a search must be in these print-outs.

10. Close-up of T list.

In order for the program to work for your search, you must use terms and phrases which it knows. Not any word will work; it must be on the print-out.

11. Close-up of scattered words. In order for the program to work for your search, you must use terms and phrases which it knows. Not any word will work; it must be on the print-out.

12. Close-up of the T list.

As you select terms from the print-out, notice the numbers beside each term. These numbers indicate the number of references stored under that term. A computer search interprets terms rigidly. There will be no chance to modify the meaning of terms once selected. Think precisely about the topic you wish to search.

13. Close-up of published thesaurus.

Another published list of search terms is useful because it has each word listed in alphabetic order, regardless of position in a phrase. This helps you while selecting terms. Be sure to check terms found in the published list in the print-outs before using them in a search.

14. Close-up of operators, AND and OR in diagram.

You will need to connect your terms with words which are called operators.
15. Close-up of sample and searches.

16. Close-up of a request form filled in with one of searches shown in '15'.

17. Close-up of request form filled with another search shown in '15'.

18. Close-up of sample OR searches.

19. Close-up of request form filled in with one of searches shown in '15'.

20. Close-up of request form filled in with another search shown in '15'.

21. Close-up of diagram of search with too many AND's.

22. Close-up of typed sheet with sample searches.

23. Close-up of request form filled in with ( ) search.

24. Close-up of request form.

The AND is used when each term is to be found associated with the reference.

These searches will produce references which have been indexed using ... all terms indicated. (pause)

OR is used when you want to compare only one term on each side of the AND. OR is especially useful when there is a very low number beside the term in the print-out.

These searches will produce references which eliminate comparison between the terms connected by the OR.

OR's should be used sparingly. (pause)

For your first search, you may want to use only one AND. More than two ANDs may eliminate all relevant references. Limit the number of ANDs used in one search to assure good retrieval.

Some common searches use two to six terms, connected with ANDs and ORs. One example of a long search using parenthesis indicates ...

a pattern for more sophisticated searching.

A form is filled in to request a computer search. The search request form requires information about you, including reasons for requesting a search. Your name goes after the SEND TO phrase. The search is written letter-by-letter in each position indicated by the slashed lines.
25. Close-up of search options - typed on lower right of request form.

The lower right corner of the request form lists the possible options which control the dates of publication for references requested. A regular search (no option requested) will produce documents from 1969 - present, and journal articles 1971 - present.

26. Close-up of request form filled in.

A filled-in form can have more than one request. Number searches 1 - 5 in the space above the option request. Turn the form in at the reference desk when completed.

27. Medium shot of person receiving a print-out.

It usually takes 24 hours for the search to be returned from the Computer Center. Evaluate the results critically when the search is received.

28. Close-up of search print-out.

The preliminary details the search submitted for the computer run. The number of references found for each segment of the search is indicated: the final number of references is found on the last line of the preliminary. Check this number with the actual number of references returned.


Documents are available on microfiche on the 3rd floor arranged by that long number beginning with an ED. The journal articles are available in the library if we carry the journal title. Check the serials list for location by call number.

30. Same as 9, with arrow pointing to message.

If the message 'Not available from EDRS' appears on the printout, check the library circulating collection in the public catalog by author or title.

31. Close-up of random journals and microfiche.

When you have examined the literature which was referenced in the search, determine the value of the literature for your topic. You may want to submit a revised search using terms suggested in the most relevant citations...

32. Medium shot of person talking to reference librarian.

... from your last search. Ask the reference librarian for assistance with your search.

33. Flash of title.

3 laminated sheets will accompany this slide tape presentation.

1) Request form filled-in,
2) Xerox sheet from RIE,
3) Xerox sheet from CIJE.
INSTRUCTION GUIDE — SEARCHING THE ERIC DATA BASE

A set of 27 2"x2" color slides with 8 minutes taped narration synchronized on the Hitachi AVA for use on the Singer Caramate.

Purpose:
1) To recognize the advantages of a manual search of CIJE and RIE, and a computer search of the ERIC data base.
2) To write a search strategy which can be used for an ERIC computer search.
3) To interpret the results of the computer search when the print-out is returned.

Audience:
UNM General Library users who are not familiar with ERIC, or who have never run a computer search on the ERIC data base.

Computer: (words underlined represent new vocabulary)
The ERIC data base is a computer-based information system, which is accessed through a program called GANDALF. The published indexes - CIJE & RIE, contain the same information as the magnetic tapes and are used for manual searching. A successful computer search requires a precise search strategy. The request form is filled-in (with selected options if needed) and submitted to the reference desk. The returned print-out provides all references found relevant to the submitted search. The literature itself is then located within the library.

Questions to ask user to determine if package would be useful. ('NO' answers to any of the questions would indicate need to view slides)
1) Have you done a successful ERIC search?
2) Have you used the published indexes - CIJE, RIE?
3) Do you need a few references for an assignment tomorrow?
4) Is there only one term in your search topic?
5) When your print-out was returned, did you understand how to use it?

Participation during viewing:
The tape can be stopped at suggested points so that the slides can be viewed longer. These points can be programmed when feedback indicates the need.

Follow-up questions and activities:
1) Do a manual search in RIE and CIJE using one term and retrieving several references.
2) Do a computer search using a multi-term search strategy, stating the option required, and filling-in the request form correctly.
3) Find the documents and articles references in the library.
4) Do you know how to write sophisticated search strategies using 'BUT NOT' and parenthesis, ( )?

Correlation with references and other instructional materials:
1) RIE - Research in education index
2) CIJE - Current index to journals in education
3) Thesaurus of ERIC descriptors
4) Print-outs (Descriptor and Identifiers, Authors) generated from GANDALF.
5) Three laminated sheets - a xerox page from RIE, a xerox page from CIJE, a filled-in request form.