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ABSTRACT

This booklet was written to assist organizations in determining whether a computerized resource system would be useful, to understand the steps necessary to develop such a system, and to judge the computer programs for adaptation or adoption. The experience of the Hampshire Educational Collaborative Inservice Program (Northampton, Massachusetts) is used as an example. The gradual accumulation of data on resource people and organizations for inservice teacher education is recounted, leading to the decision to put the information in a computerized retrieval system. Factors involved in designing the resource system, such as staff and user goals, information categories, and legal implications, are reviewed. An account of the frustrations of an equipment change and of the resulting reexamination of goals and categories emphasizes the importance of flexibility and detailed planning. Data collection, coding, and entry are addressed along with publicity for the ongoing system. Appendices contain the first and revised sets of user instructions, sample printouts from the computer program, and a list of the subject categories stored in the database. (FG)

Developing A Computerized Resource Retrieval System

inservice series no. 5

HAMPSHIRE EDUCATIONAL COLLABORATIVE

This booklet was written to help other organizations to determine whether or not a resource retrieval system would be useful to them, to understand the steps needed in developing such a system, and to consider the computer programs for adaptation or adoption.

If you need further information, or if you have ideas for ways we can improve our system, please let me know.

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Developing A Computerized Resource Retrieval System

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B.C. [Before Computer]

The Hampshire Educational Collaborative (HEC) Inservice Program is designed to train inservice facilitator teams in each of the eleven school systems in the collaborative to organize inservice activities for their school systems. The Inservice Program provides a variety of support services to help teams in their planning. One service is a computerized resource file which teams use to locate individuals, organizations and materials to help school staff meet their professional development needs.

When the Inservice Program began in 1975, no one associated with it envisioned a computerized retrieval system as a vital component of the program. We were intent on helping inservice planning teams prepare needs assessments, design good workshops, develop effective communication systems within the team and with the school community, and evaluate their activities. Once needs assessments had been completed, however, it became obvious that the teams did not know where to find the appropriate individuals or organizations needed to conduct inservice workshops. The teams met to create the first resource file. It was a brainstormed list of people and places -- two pages long.

In 1976, teams asked the teachers coordinating the Inservice Program to maintain and update a file of potential resource people. We developed a form which asked for the resource person's name, address and areas of expertise, and we distributed it to team members

who were supposed to actively solicit names for the file. By 1977, we had enough forms completed to fill one manilla file folder!

In 1978, the Inservice Program hired its first half-time coordinator and half-time secretary. Representatives of inservice teams, serving as an Advisory Council to the coordinator, listed the development of a complete resource system as a priority.

The coordinator established categories and sought names to put in each category. Now each category had its own file folder (with this system, an individual skilled in both language arts and teaching the gifted and talented appeared in two folders). The resource files, filling a red plastic milk carton, were carried to inservice team meetings throughout the 360 square mile area served by the collaborative. We also devoted space in our monthly newsletter, Inside Inservice, to list resources (people, organizations, and books).

Computerization

At the end of 1978, the Advisory Council listed the resource file, once again, as a high priority for the coordinator, suggesting politely but firmly that it be moved out of the milk carton into some type of computerized system. Dr. G. Ernest Anderson from the School of Education at the University of Massachusetts volunteered his time to help the coordinator design a retrieval system, and to do the programming of the system. He, very wisely, suggested a simple programming approach which could be used as the first step toward a resource retrieval system.

Because of time and money limitations, this system is not very elegant; however, it does work. If it works well enough for a large enough number of users, it may be worthwhile expanding and developing a more sophisticated system from this humble beginning. On the other hand, it is often the case that a very simple, "quick and dirty", system, such as this is all that is needed to get the job done. Time will tell if any computerized system is really superior to a good manual system, and is worth the money it costs to maintain it.

This project may serve another purpose: once a computer terminal is available, people's imaginations begin to come up with additional uses for it. Whether or not this data retrieval system thrives, or even survives, it may be the "spark plug" for additional and possibly important uses of the computer.

Dr. G. Ernest Anderson
October 31, 1979

The system developed included the programs Dr. Anderson wrote in BASIC for the University of Massachusetts' CDC - Cyber 79 computer, and an acoustically coupled terminal at the HEC office. (See Appendix I for programs.)

We developed 51 categories for the program. Users would take a print-out list of names to alphabetically arranged files. Each paper file included information on an individual or organization: a resource form, resume, and any additional information which we had received.

Since one of our purposes in developing the retrieval system was to encourage our school systems and our own staff to explore the many uses of the computer, it was important for us to have programs that were very easy to use. Dr. Anderson's program provided many user prompts, and we developed an additional user sheet to help the nervous user to get the program started, correct

typing mistakes, and exit from the program. We also developed forms to log the use of the terminal so that we would have data on the purpose of uses and problems that occurred during use. Like most logs, it was used sporadically, but it still provided a sampling of information which we used to correct errors and in our next revision of the system.

From Terminal To Micro-computer

As Dr. Anderson suggested, the presence of the terminal in the Inservice Program stimulated ideas for additional uses of the computer. At about the time that our staff was beginning to use the terminal for a variety of purposes (statistical analysis, as a link to other computer data bases, as a method to learn programming) the technological revolution in micro-computers was making the small machines accessible to our school systems. We realized that o micro-computer in the office could be used as a terminal for the retrieval system and as a demonstration machine in inservice courses for both student and adult use of micro-computers.

Although we had originally thought we would keep our retrieval system on the UMass computer, once the micro-computer came to the office we decided to rewrite the programs for use directly on the micro-computer. The resource retrieval system was, therefore, rewritten in BASIC for use on the APPLE II. (See Appendix II for programs.)

Richard Horlick, who developed the computer programs for the APPLE computer, begon by asking the same hard questions that Dr.

Anderson had asked a year and a half earlier. Since the program had to be rewritten anyway to accommodate the differences between machines, he encouraged us to reexamine our goals and categorization system. It is important to stress the problems associated with such an examination. To begin with, reviewing goals and categories requires time and discussion. While we were involved in that process, our old system became outdated and was, therefore, not very useful to school systems. There is no question that the new system is better designed to meet our changing needs, but there have been moments when we would have thrown, cheerfully, the baby out with the bath water.

Goal Setting

It is not always easy to decide exactly what you want a resource system to do. It is time consuming, but absolutely essential, to discuss goals with staff members, policy boards, users, and funding agents. The goals we established for our retrieval system were:

1. To provide planners with a variety of easily accessible resources (workshop presenters and background information) for planning inservice activities.
2. To actively recruit local resources which have not commonly been used in the schools.
3. To encourage teachers and school staff to serve as resources to each other.
4. To introduce the capabilities of micro-computers to users.
5. To have the system work as simply and accurately as possible.

In selecting these goals, we left out other possible goals, such as fancy print-out, more rigid "security," quality control, and a more complicated filing system. It is important to set goals so you know when you reach them, or, one might add, when you miss them. You may revise them later, but start with a well thought out set.

Alternative Designs

Once you establish goals, you can look at alternative designs for meeting those goals. Gluing the goals you establish to your clipboard when you visit resource centers will keep you from adopting some terribly clever designs that will not meet your needs. Contact resource centers (educational, environmental, consumer, political), educational intermediate agencies (regional centers, collaboratives, counties), industrial firms, business organizations, cooperatives, distribution centers, and human service organizations. If there is a chance that you will computerize your resource system, bring your computer programmer along when viewing systems. There are packaged resource retrieval systems available which may meet your needs. If you go that route, test the program and talk with experienced users to make sure it will meet your needs.

Categorization

One of the most difficult problems in developing any resource file, computerized or not, is the selection of categories. The larger the system, the more important careful categorization becomes, since it is an incredible nuisance to change categories. In the

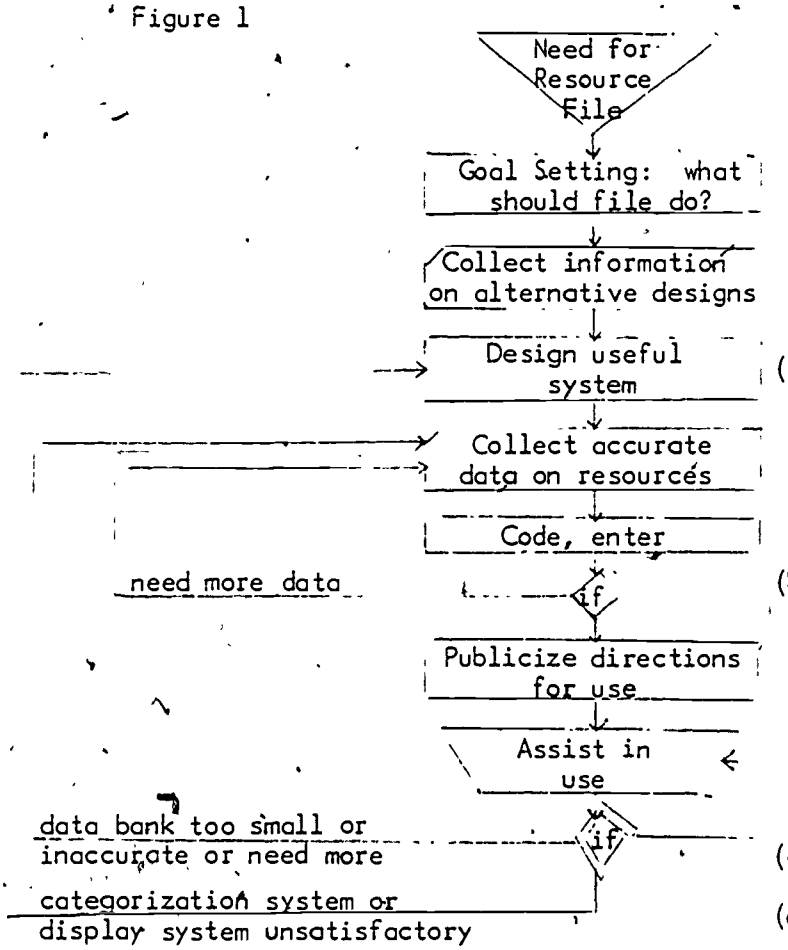
process of developing the first computerized system, the coordinator examined every system she could locate. Many of them had hundreds of categories. Most of the people who had developed large numbers of categories admitted, however, that they had never got their systems working. A good rule of thumb is to use common sense, to develop a reasonable set of categories, to try using them to both enter and retrieve resources, and to allow for the introduction of new categories at future dates. The introduction of new categories can create crises. Our first program had categories integrated into it. Our new computer system is category-free: the names of the categories are on the users' paper guide, not in the program. Having the program category-free makes the introduction of new categories easier. Someone still has to review all present files to see if there are entries which should be coded into new categories. (Copies of our changing category lists are included in Appendix III.)

Legal Implications

As long as we carried the resource file around in a milk carton, the legal implications of including or excluding individuals or organizations were not major concerns. In one of the many revisions of resource forms, however, the inservice teams suggested that we include comments from the teams about the effectiveness of the presenter. This opened up all kinds of legal and ethical issues. Anyone who has done workshops knows that personal health, the political climate of the school, the temperature of the room, and Murphy's law can all contribute to the workshop's success or failure.

Finally, we compromised by asking the presenter for references and providing these to the potential user. It was easier, legally safer, and probably more ethical to help the planning teams become more sophisticated consumers when contracting with presenters. We made it their responsibility to determine the appropriateness of a presenter to their situation.

Figure 1



a) Useful 1) to potential clients 2) to you. Make sure it will not consume more time and money than you have.

b) 1st evaluation point if There is never enough data. Unless you are publishing the file as a book, you will have to take both paths simultaneously.

c) 2nd evaluation point if data always needs updating. Design changes are major crises -- do infrequently.

d) Note: there is not way out of the system except by cutting off the electricity, paper supply, or funding!

Collecting Accurate Data

It is possible to spend months, even years, collecting data before entering any of it into a resource file. No one, however, wants to fill out a form for a nonexistent data bank. If they do fill out the form the day will finally come when someone has to start entering data, boxes and boxes of it!

We recommend that as soon as you have the first bit of data, enter it into your system. This has two advantages: (1) it will enable you to find the mistakes you have made in the form you use for data collection. You will surely want to revise your form (spacing, color, information -- something.) You may wish that you had asked everyone for his or her home phone number, social security number, or, perhaps, height. (2) The best advertisement for your resource file is the person who gets a consulting job through its use. That person's friends will flock to fill out forms. Although we make sure that every consultant we use in our wide variety of programs gets entered, nearly half our entries come from requests for forms from someone-who-talked-to-someone who was in the file.

We have gone to meetings and organizations to seek entries for our file, especially in new or weak categories. We find this an important activity, and will continue to solicite entries in order to avoid the "old boy network." Even the simplest retrieval system is better than a "top of your head" referral system if you are interested in trying to avoid clased networking.

Keeping Your System Up-To-Date

What happens when people move, acquire new skills, or become less interested in an area? Many people remember to tell us about address changes, others ask us to upgrade their files. Once a year we review the names on file and send out letters to those we have not used or heard about to see if they still exist. Users are of assistance in this process by telling the system coordinator of problems they have had in locating consultants.

Coding

Coding of resources for the retrieval system is most effective when done by someone familiar with the topic to be coded and resources. Thus, the staff member who ordered a book should code it; the coordinator who has a project in nutrition should code all nutrition resources. In this way, the process will be most efficient and the coding most accurate.

Uniform coding procedures are important. Be sure to have at least one workshop on the coding process for your entire staff, and review the process regularly. At one time, we asked consultants to code themselves. We found they tended to put themselves into too many categories, so we now code them ourselves. Overcoding has also been a tendency among our staff. It is tempting to code someone who is skilled in energy education into several categories: social studies, science, environmental education, etc. A user, however, wants to consider that name only when looking for energy education resources. Don't overcode.

Entering

Entering data requires careful typing, attention to detail, quiet working conditions, and a strong back. Every entry should be checked for accuracy by a person serving as a verifier. Some type of security system, such as a different user number for a terminal, no directions for entry program, back up disks and tapes, should be developed so that well-meaning users cannot help out in correcting data. There should be a place in the log book for the user to record recommendations, but users should not be allowed to enter data. If your files are going to electronic heaven, you want to be responsible for sending them there.

Publicity

Since resource files are designed for a specific group of users, it would seem that publicizing the presence of the file would not be too important. We have found, however, that any new way of handling information requires careful explanation. In the beginning, when the file is fairly small, publicity can be frustrating. "This name is spelled wrong," "I know someone who should be here but isn't," "Wouldn't a simple list be easier?" These are not encouraging words. Just keep at it.

To understand what is happening when they call to ask for information, users should be encouraged to sit down at the machine at least once to run their own searches. This may require special invitations, wine and cheese, or door prizes; but it will increase the confident, continuous, and, perhaps, creative use of the system.

Micro-computers and terminals can be carried to work sites for demonstrations.

We devote a section of the newsletter to the resource file. Although it is difficult to assess the impact of this publicity, it is certainly not as powerful as of watching the machine whirr. However, it does help to remind people of the file's existence.

Since one of the goals of our resource center is to familiarize users with the capabilities of the micro-computer, we like to spend as much time as possible with the user when a search is underway. The extra time and extra questions make extra sure that users have all the information they need. Some people get so excited by the printout that they don't realize they have selected wrong categories for their needs and, so, have a useless list.

A users manual that is clearly written in real English is invaluable. It should include information on plugging in the machine, correcting errors, and remembering to press "RETURN," etc. (See Appendices I and II.)

The Future

We do not expect to make major changes in our present system. (That is not a statement, but a prayer.) Since the categories are essentially unlimited, we will be able to add new categories as they are needed with only changes in the instruction to users rather than in the program. We will review files for entries which should be categorized in new areas. Editing programs allow us to make these

types of corrections easily.

With the uncertainty of state and federal funding, the cost of maintaining our system is especially appealing. We anticipate that a staff member knowledgeable about the system can keep the files updated with new entries or changes in present entries working two hours per week. Each request for assistance in using the files takes approximately a half an hour of staff time. (The user is encouraged to try a variety of category combinations and is helped in using the backup paper file.) Assistance is often given by phone, with the staff person reading from the files and xeroxing and mailing information which the user can evaluate. There are no monthly hook-up or terminal rental or computer storage costs with the micro-computer. All disks have backup copies ($5.00 each) which will be recopied periodically.

APPENDIX I

USER INSTRUCTIONS

To use the data retrieval system, you must first know what it is you want to know. Consult the current list of Resource File Categories, and select those that appear to be most useful to the problem at hand. You will also need the current index numbers of these Categories. It is anticipated that the Categories in use may change through replacement or through additions. You can always obtain a current list on your computer terminal by GETting the file NAMES and LISTing it as shown on a following page.

We also assume you have a computer terminal available, either where you are or at the Hampshire Educational Collaborative, that can connect to the University of Massachusetts Time-Sharing System, and that you or someone who is using the system for you knows enough about the Time-Sharing System and terminal operation to use it. Instruction at this level is not included here, but is available through a number of University sources.

Suppose you want a list of the available resources that meet the criteria of: SEVERE/PROFOUND NEEDS for LEARNING DISABLED that can be a RESOURCE to you at the SECONDARY level and also with EVALUATION competencies. By consulting the NAMES file listing, you find that these categories have index numbers of 51, 47, 22, 7, and 17 respectively.

As shown on the Sample Retrieval Run on a following page, you log onto the computer, giving your own user number and password. (For the time being, the School of Education has made a user number available; this may eventually change.). You need to select the BASIC system, since this retrieval system was programmed in BASIC to ease possible future transition to a mini-computer. As shown in the Sample Retrieval Run example, you then get from disk storage the

necessary files: RETR (which is the computer program that does the work), DATA (which is the file of actual resource categories associated with each possible resource), and NAMES (which contains the plain English equivalent of each resource category). These files are stored under a different account number than the one you are using, but have been made "semi-private" so you can use them from your terminal under your account number. Please follow exactly the procedure outlined in the Sample Retrieval Run.

When all 3 files are available, and you give the computer command RNH (or RUN), the program will ask you first the number of descriptors you want to use. Since you have 5, that is what you type in. The computer then asks you for one descriptor index number at a time, and tells you what that is as a check that you have selected (and typed!) correctly. The list of files that match all of your criteria is then typed out for you, unless you were unlucky enough to ask for a set of criteria not met by any resource.

You may re-run the program again, if you wish, without logging in to the computer again, and without getting the necessary files again. Simply give the command RNH (or RUN) again, and specify another set of criteria (descriptors) you want to try.

It is anticipated that there will be changes and improvements to this system from time to time. Insofar as possible, these changes will be "transparent" to you, the user; you will be unaware that there is more data on the system, may be minorly aware that some aspect of the retrieval program operates differently, but should be carefully aware of changes in the categories available so you can select what is most appropriate for you at the current time.

It remains your responsibility to examine each indicated resource further and to determine its real potential use to you. ERIC, for example, has information on most subjects, but sometimes very little in the specific combination you are looking for.

Resource File Categories

Services offered
workshop/course
visitation/model program
resources to share

Student level
Pre-school
elementary
middle school/junior
secondary

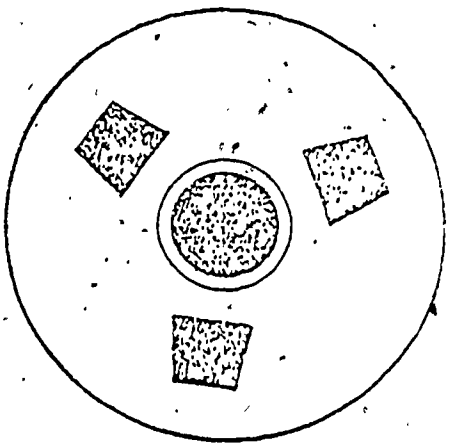
Organizational Issue
alternative program
counseling/guidance
developmental approach
goal setting/philosophy/organizational
management/leadership/supervision
parents/community
substitute/aide/intern

Skill area for teachers
classroom organization
curriculum development
evaluation/testing/competency testing
inservice process
funding/legislative guidelines
interpersonal/group process/discipline
media/computer
resource services
teacher goals

Curriculum areas
business/commercial
creative arts
home economics/industrial arts
language arts except writing
writing/composition
languages/foreign/bi-lingual
math and measurement
movement/sports/games
occupational/vocational education
social studies
science

Curriculum approaches
career/pre-vocational
energy/environmental education
gifted and talented
health/safety
nutrition
law
multi-cultural education
sex role issues
thinking skills/learning styles/thinking styles

Special needs
special education process
visually impaired
communication/speech/hearing impaired
learning disabled/perceptual problems
therapeutic services
psychological/emotional services
mild/moderate needs
severe/profound needs
physical/medical needs



```
GET,NAMES/UN=A431130

                                        PROCEDURE FOR OBTAINING
 READY.                                 CURRENT LIST OF
LIST,F=NAMES                            RESOURCE FILE CATEGORIES

 79/10/31. 14.16.57.
   FILE   NAMES

01 "WORKSHOP/COURSE"
02 "VISITATION/MODEL PROGRAM"
03 "RESOURCES TO SHARE"
04 "PRE-SCHOOL"
05 "ELEMENTARY"
06 "MIDDLE SCHOOL/JUNIOR HIGH"
07 "SECONDARY"
08 "ALTERNATIVE PROGRAM"
09 "COUNSELING/GUIDANCE"
10 "DEVELOPMENTAL APPROACH"
11 "GOAL SETTING/PHILOSOPHY/ORGANIZATION"
12 "MANAGEMENT/LEADERSHIP/SUPERVISION"
13 "PARENTS/COMMUNITY"
14 "SUBSTITUTE AIDE/INTERN"
15 "CLASSROOM ORGANIZATION"
16 "CURRICULUM DEVELOPMENT"
17 "EVALUATION/TESTING/COMPETENCY TESTING"
18 "INSERVICE PROCESS"
19 "FUNDING/LEGISLATIVE GUIDELINES"
20 "INTERPERSONAL/GROUP PROCESS/DISCIPLINE"
21 "MEDIA/COMPUTER"
22 "RESOURCE SERVICES"
23 "TEACHER GOALS"
24 "BUSINESS/COMMERCIAL"
25 "CREATIVE ARTS"
26 "HOME ECONOMICS/INDUSTRIAL ARTS"
27 "LANGUAGE ARTS EXCEPT WRITING"
28 "WRITING/COMPOSITION"
29 "LANGUAGES/FOREIGN/BI-LINGUAL"
30 "MATH AND MEASUREMENT"
31 "MOVEMENT/SPORTS/GAMES"
32 "OCCUPATIONAL/VOCATIONAL EDUCATION"
33 "SOCIAL STUDIES"
34 "SCIENCE"
35 "CAREER/PRE-VOCATIONAL"
36 "ENERGY/ENVIRONMENTAL EDUCATION"
37 "GIFTED AND TALENTED"
38 "HEALTH/SAFETY"
39 "NUTRITION"
40 "LAW"
41 "MULTI-CULTURAL EDUCATION"
42 "SEX ROLE ISSUES"
43 "THINKING SKILLS/LEARNING STYLES/THINKING STYLES"
44 "SPECIAL EDUCATION PROCESS"
45 "VISUALLY IMPAIRED"
46 "COMMUNICATION/SPEECH/HEARING IMPAIRED"
47 "LEARNING DISABLED/PERCEPTUAL PROBLEMS"
48 "THERAPEUTIC SERVICES"
49 "PSYCHOLOGICAL/EMOTIONAL SERVICES"
50 "MILD/MODERATE NEEDS"
51 "SEVERE/PROFOUND NEEDS"
52 "PHYSICAL/MEDICAL NEEDS"

 READY.
```

SAMPLE RETRIEVAL RUN

```
79/10/31. 14.12.25. TIP2015.
 UMASS NOS 1.3-485/485                    NOS 1.3-485/485
USER NUMBER:                                        (give your user number
            TERMINAL: 145. USERS 99                  and password)
RECOVER /SYSTEM:BASIC
OLD. NEW. OR LIB FILE: OLD.RETR/UN=A431130


 READY.
GET.DATA/UN=A431130


 READY.
GET.NAMES/UN=A431130


 READY.
RNH

WELCOME TO DATA RETRIEVAL DEMONSTRATION

TYPE IN THE NUMBER OF DESCRIPTORS YOU WANT TO USE
? 5                                                  (10 is maximum)
TYPE IN DESCRIPTOR 1  ? 51
                       SEVERE/PROFOUND NEEDS
TYPE IN DESCRIPTOR 2  ? 47
                       LEARNING DISABLED/PERCEPTUAL PROBLEMS
TYPE IN DESCRIPTOR 3  ? 22
                       RESOURCE SERVICES
TYPE IN DESCRIPTOR 4  ? 7
                       SECONDARY
TYPE IN DESCRIPTOR 5  ? 17
                       EVALUATION/TESTING/COMPETENCY TESTING

THE FOLLOWING FILES SEEM TO MATCH YOUR REQUESTS

        SEVERE/PROFOUND NEEDS
        LEARNING DISABLED/PERCEPTUAL PROBLEMS
        RESOURCE SERVICES
        SECONDARY
        EVALUATION/TESTING/COMPETENCY TESTING

FEIKER SCH.1205
D.M.H.      1701
L.CARROLL   0200
P.SMITH     0500
MA DISSEM P1700
ERIC CLEAR 2200

SRU      1.819 UNTS.

 RUN COMPLETE.
```

MAINTENANCE INSTRUCTIONS

The following pages outline how to enter data into the system, how to obtain listings of the data, and provides listings of the actual programs. It is assumed that only a designated person at the Hampshire Educational Collaborative will maintain the data, and that computer programs will be maintained by the author.

All files are stored under an account number different than that provided users so that no user can accidentally (or otherwise) change or eradicate the contents of any file.

It may be desirable to undertake reordering of the data, reformatting of the data to add or change categories or expand what the user is told about each resource. Such "massive" changes also require changes in the computer programs that operate on the data; obviously, both should be brought about at the same time.

Because of the simplicity of the present programs (as a result of the quick and dirty, and cheap, approach), they are extremely sensitive to any errors in the DATA file. Every change or addition to that file should be carefully and thoroughly checked before changes are REPLACED on the disk for use. A minor format error can cause a program not to run past that point in the data.

The NAMES file:

This is a very simple file, as shown in a previous listing. It contains a 2 digit line number that is also the index number to the resource category so named, followed by a space, followed by the actual name in quotation marks. A name may not exceed one line.

The DATA file:

This file consists of a unique 3-digit line number for each resource, a space, a string of 52 (at present) 0 or 1 indicators that say whether or not each of the 52 categories apply to this resource, another space, and then descriptive material for the user to have in finding where to look further.

CHARACTERISTICS OF THE FILE DATA (as of 10/31/79)

79/10/31. 14.47.24.
FILE DATA

```
980 1001111000100000001001000000000000000000000100000001 M.W.ASSOCT 0500
981 1011111000001000000100000000000000000000100000000 J.LEVINE  1204
990 1011111010111011000101000100000001000110010000001001 LIFEWAYS  1800
991 1001111000000000000000000000000000000000000000001000000 J.WALL  0701
```

FORMAT OF DATA FILE

POS. 1-3	=	LINE (CASE) NUMBER
4		BLANK (END OF LINE NUMBER)
5-56	=	0 OR 1 INDICATORS 52 AVAILABLE CRITERIA
57		BLANK
58-68	=	ABBREVIATED FILE NAME (PERSON OR ORGANIZATION)
69-72	=	FILE LOCATOR NUMBERS

READY.

As a help in typing in a new data line, remember that the 0 - 1 descriptors (categories) should be 4 positions to the right of the index number for the categories. Thus if category 14 applies, the 1 should be typed in position 18. By listing an existing line known to be in correct format, errors of spacing can be caught and corrected. Standard sequenced file editor operations are useable on this file for changes in format or content.

As a further help in assuring that data are correctly entered, the program SELDIS may be run from the terminal to display back in plain English what has been coded for each resource.

Another program, SUBDIS, may be submitted to cause a similar listing for all entries in the DATA file. Because of the length of such a listing, the results should be printed on the high speed printer at the computer center and obtained there. It is recommended that this be done once in a while, and used as a reference as well as for checking purposes.

OBTAINING A LISTING OF SELECTED FILE CHARACTERISTICS
(Resource File Categories that apply)

```
OLD,SELDIS

 READY.
GET,NAMES

 READY.
GET,DATA

 READY.
RNH

TYPE IN NUMBER OF FILE DATA TO BE DISPLAYED
? 781                                          (line number for
                                                file wanted)
LINDBURGH S1301 781
       3   RESOURCES TO SHARE
       4   PRE-SCHOOL
       5   ELEMENTARY
      10   DEVELOPMENTAL APPROACH
TYPE IN NUMBER OF FILE DATA TO BE DISPLAYED
? 691

C.SELLERS  1202 691
       1   WORKSHOP/COURSE
       4   PRE-SCHOOL
       5   ELEMENTARY
       6   MIDDLE SCHOOL/JUNIOR HIGH
       7   SECONDARY
      13   PARENTS/COMMUNITY
      16   CURRICULUM DEVELOPMENT
      25   CREATIVE ARTS
      31   MOVEMENT/SPORTS/GAMES
      45   VISUALLY IMPAIRED
      46   COMMUNICATION/SPEECH/HEARING IMPAIRED
      47   LEARNING DISABLED/PERCEPTUAL PROBLEMS
      48   THERAPEUTIC SERVICES
      49   PSYCHOLOGICAL/EMOTIONAL SERVICES
      50   MILD/MODERATE NEEDS
      52   PHYSICAL/MEDICAL NEEDS
TYPE IN NUMBER OF FILE DATA TO BE DISPLAYED
? 0                                            ("0" is stop indicator)

SRU     ; 2.238 UNTS.

 RUN COMPLETE.
```

PROGRAM LISTINGS

For the sake of completeness, programs are listed on the following pages. Because of their simplicity, they are not at this time flowcharted or further documented.

They are all written in the BASIC language, with the possibility in mind that a data retrieval system such as this may someday operate on a resident mini-computer. The dominant "native language" of minicomputers at this time is BASIC.

The program SUBDIS is entirely control language statements, and is equivalent to the cards that would be punched at the computer center. It requires the current password for the account number under which all files are stored; hence, this program may have to be modified if the account number and/or password is changed.

Listing of the main retrieval program, RETR

```
79/10/31. 14.23.18.
  FILE   RETR

125 DIM NS (60)
130 FILE #2 = "NAMES"
132 RESTORE #2
134 IF END #2 GO TO 140
135 INPUT #2, N,SS
136 NS(N)=SS
137 GO TO 134
140 FILE #3 = "DATA"
141 RESTORE #3
145 DIM D(25)
150 PRINT "WELCOME TO DATA RETRIEVAL DEMONSTRATION"
155 PRINT
160 PRINT "TYPE IN THE NUMBER OF DESCRIPTORS YOU WANT TO USE"
165 INPUT N
170 IF N <=0 GO TO 999
200 FOR I = 1 TO N
210 PRINT "TYPE IN DESCRIPTOR"; I;
215 INPUT D(I)
216 K=D(I)
217 PRINT TAB(20); NS(K)
220 NEXT I
225 G=0
300 IF END #3 GO TO 800
305 INPUT #3, J, TS
310 FOR I = 1 TO N
315 K=D(I)
320 L=VAL(SUBSTR(TS,K,1))
330 IF L<=0 GO TO 460
335 NEXT I
400 IF G=1 GO TO 450
403 PRINT
405 PRINT "THE FOLLOWING FILES SEEM TO MATCH YOUR REQUESTS"
410 PRINT
415 FOR I = 1 TO N
420 K=D(I)
425 PRINT TAB(7); NS(K)
430 NEXT I
435 PRINT
450 G=1
455 PRINT SUBSTR(TS, 54, 16)
460 IF MORE #3 GO TO 300
800 IF G > 0 GO TO 900
805 PRINT "SORRY WE DIDN'T FIND ANY FILES MEETING ALL YOUR CRITERIA."
810 PRINT
815 PRINT "TYPE IN 1 TO TRY AGAIN, 0 TO END THE COMPUTER SEARCH."
820 INPUT A
825 IF A > 0 GO TO 160
900 GO TO 999
999 END

 READY.
```

PROGRAM LISTING FOR SELECTIVE FILE DISPLAY

```
OLD,SELDIS

 READY.
LIST.

 79/10/31. 14.28.13.
   FILE   SELDIS

190 DIM N$ (60)
200 FILE #2 = "NAMES"
205 FILE #3 = "DATA"
210 RESTORE #3
215 RESTORE #2
220 IF END #2 GO TO 300
225 INPUT #2, N,S$
230 N$(N)=S$
235 GO TO 220
300 PRINT "TYPE IN NUMBER OF FILE DATA TO BE DISPLAYED"
305 INPUT B
310 IF B = 0 GO TO 999
320 RESTORE #3
500 IF END #3 GO TO 990
505 INPUT #3, U, T$
506 IF J<>B GO TO 500
507 PRINT
509 S$=SUBSTR(T$,54,16)
510 PRINT S$, J
515 FOR I = 1 TO 52
520 K$=SUBSTR(T$,I,1)
525 L=VAL(K$)
527 IF L <=0 GO TO 535
530 PRINT USING 531, I, N$(I)
531 :     ##    <<<<<<<<<<<<<<<<
535 NEXT I
600 GO TO 300
990 PRINT
993 PRINT "END OF DATA FILE REACHED".
996 GO TO 330
998 PRINT
999 END

 READY.
```

APPENDIX II

HAMPSHIRE EDUCATIONAL COLLABORATIVE
PETER F. DEMERS, EXECUTIVE DIRECTOR

USERS MANUAL
APPLE II

RESOURCE FILES

1. Select the type of resources you are looking for from the following:

   A. Workshops/Courses (individuals and organizations who can give inservice assistance)

   B. Resources (organizations who have specialized libraries, resource centers, publish certain types of materials)

   C. Visitations (schools or institutions where demonstration/model classrooms are available for visits)

   D. Library (materials in our HEC Resource Center)

2. Take out the two disks labeled with the type of resource you want. One will say, for example, "Workshops/Courses", the other will say "Annotations: Workshops/Courses". Put the annotations disk where you can easily find it (on top of the disk drive, i.e.: the little black box labeled "Disk II"). Put the other disk in the left hand disk drive. Place it label side up, "slot" goes to back -- label to front. Gently insert the disk into the slot: DO NOT FORCE. Close the door above the slot.

3. Turn on TV monitor. Turn on the computer (the switch is on the back left hand side). Disk drive will "whir" -- that's o.k.

   If you want to ENTER DATA: hold down the "CTRL" key (this is called the "control" key) while you hit the letter "c", and then hit the key labeled "return" on the right side of the keyboard. The machine will respond with "Error 255 at line 150 close". That's o.k. Turn to directions on page 3 to continue.

   If you want to GET INFORMATION: proceed to page 2.

N.B.: If you ever accidentally hit the RESET key, you can usually "recover" what you were doing in the following way:

   1) Hold down the "CTRL" key while you hit the letter "c"
   2) Type the letters "c", "o", "n" and "t".

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IF YOU WANT TO GET INFORMATION

N.B.: If you make a mistake, go back with the arrow " ←". This deletes each letter it goes over, so retype from the error on to the end of the line.

Follow general directions on page 1, then:

If you see "CHARACTERISTIC ? ", go to step 5. Otherwise:

4. Type "Run Workshop/Course" , press "RETURN"

N.B.: Workshops/Courses is used as an example throughout these pages. You can, of course, substitute Resources, Visitations, or Library as appropriate.

5. You are now in the program and just need to follow the directions Rick Harlick has written into it.

6. When the program asks "Do you wish to see the annotations for this record?" type Y if you do, and press "RETURN" (or type N if you do not, and "RETURN".) If you type Y, then you will have to place the appropriate annotations disk in the disk drive (as described in #2, page 1) and press "RETURN".

7. A copy of the category numbers is in Appendix III.

8. If, after one listing, you want to try another combination of categories, type "Run", press "RETURN" and you can start again. We would like to encourage you to try various combinations to get the best total listing.

IF YOU WANT TO ENTER DATA

See page 1 for instructions (#2) on turning on the machine. Type :

"Run Services-Works" if you want to enter data on Workshops/Courses
"Run Services-Resou" if you want to enter data on Resources
"Run Services-Visit" if you want to enter data on Visitations
"Run Services-Libra" if you want to enter data on the library

The program will give you instructions.

If you don't know what record number to begin with, turn to "Reading Numbers File" on page 4 before you go any further.

a. When typing numbers, leave only one space between entries. Thus, record 93 with interests in pre-school and media would have

93 1 210

Be very careful about this. All hell breaks loose when you add extra spaces, commas or anything else. Most important, do not start or end with a space.

b. Write reference # on coding sheet top right hand corner.

c. When typing name, address put last name first. Use NO commas. You only have 20 spaces per line.

d. When typing annotations, you have 39 spaces per line. Use NO commas. When you are done, hit "RETURN" until you get "NEXT READ".

e. Remember to type "STOP" and follow directions for putting in annotation disk when you are through or all your work will go to electronic heaven. When you put annotations disk in, press the "RETURN" key and listen to the lovely whir of information being recorded.

TO READ NUMBER FILE
(reference number and categories)

First you need to know last reference number used. With disk in and machine on

a. Hold down the "CTRL" key while you hit the letter "c", and press "RETURN"

b. Machine will say "error 255 at line 35
close"
That's o.k.

c. Type "Run Filereader", press return.

d. Machine will ask "File Name?"

e. Type "Dafiworks" (DAta FIle for WORKShops) or
"Dafiresou" (DAta FIle for RESOURces) or
"Dafivisit" (DAta FIle for VISITations) or
"Dafilibra" (DAta FIle for LIBRAry).

Press "RETURN"

f. Machine will begin typing lots of numbers. Let it run until it stops. If you want to stop it, hold down the "CTRL" key while you hit the letter "s". This will stop the "scrolling". To start again, press "RETURN".

The last file has

RN=number ? number number number
number number etc.
error code:5 at line:28

The number before the question mark is the reference number. (The other numbers are the categories that were assigned to that person/book/organization.) You will want to start entering at the next highest number.

N.B.: Filereader now allows one to give a record # (as defined on page 3) to find a record to fix. It also lets one save the old version if one is not sure that he entered corrections well.

CORRECTION IN NUMBERS
(categories)

When you make a mistake in the numbers (DAFIWORKS):

1. Type "Run FILEFIXER", press "RETURN"

2. It will ask "file name?" Type "DAFIWORKS", or the appropriate data file.

3. It will ask "Do you want to start with the first record?" If you do, type Y. If you want to start further along, type N.

   If you have typed N, you are going to have trouble guessing where to start. If you entered files in order, and know the entry number (not the record number) of the file you are looking for, by multiplying the entry number by 5.25 you can estimate its place in the files. The count is by entries. Each person/organization/book has the following entries:

   x=number of categories
   y=reference number
   z
   a
   b } category listings
   c
   etc.

   Approximately
   100 starts you in the middle of record 17,
   150 is record 30,
   200 is 38,
   250 is 44,
   300 is 51

4. The machine will ask "L or N?" Type L.

N.B.: The machine opens and closes each file; it is, therefore, very slow. Don't panic. Just wait.

5. If you want to insert, go to the previous number. Type "c" (for change), reenter that number and then, when prompted, add the number you want.

DO NOT EXIT THIS PROGRAM UNTIL YOU HAVE FINISHED IT. YOU COULD LOSE AN INCREDIBLE NUMBER OF FILES.

TO READ MAIN NAME FILE

If you want to look at the address information which has been entered:

a. Hold down the "CTRL" key while you hit the letter "c", press "RETURN".
   It will type "Error 255 at line 35
   close"
   That's o.k.

b. Type "Run RANDREADER"
   It will type "File Name?"

c. Type "MLIWORKS" (for Main LIteral WORKShops file)
   "MLIRESOU" (" " " RESOUrces file)
   "MLIVISIT" (" " " VISITations file)
   "MLILIBRA" (" " " LIBRAry file)
   It will type "length of file?"

d. Type 80 (that is the number of characters allowed).
   It will type "number of fields per record?"

e. Type 4 (that is the number of lines)
   It will type "continue?"

f. Hit "RETURN"
   It will type "RECORD #?"

g. Either begin with 1 or with some record you have a reason to want. Since it asks each time what number you wont, you can skip along as you need to.

CORRECTING MAIN NAME FILE

When you make a mistake in the address list (MLIWORKS, etc.)

a. Type "RUN RANDFIXER", press "RETURN"
   It will ask "file name?"

b. Type "MLIWORKS" or appropriate main literal file.
   It will ask "Length of file?"

c. Type 80
   It will ask "Number of fields per record?"

d. Type 4
   It will ask "How long is each record?"

e. Type 19 (that is the length of line)
   It will ask "Continue?"

f. If you wish to continue, type Y, if not, type N (to stop).

If you want to check out the annotations:

a. Type "Run RANDREADER"
   It will ask "File name?"

b. Type "AFIWORKS" (Annotation FIle for WORKShops)
   "AFIRESOU" (" " " RESOURces)
   "AFIVISIT" (" " " VISITations)
   "AFILIBRA" (" " " LIBRAry)

   It will ask "Length of file?"

c. Type 400 (number of spaces)
   It will ask "Number of fields per record?"

d. Type 10 (number of lines)
   It will ask "Continue?"

e. TAKE OUT REGULAR DISK, PUT IN ANNOTATIONS DISK, press "RETURN"

CORRECTING ANNOTATIONS

If you want to correct annotations:

a. With main disk in, type "Run RANDFIXER"
   It will ask "File name?"

b. Type "AFIWORKS" (Annotation FIle for WORKShops)
   "AFIRESOU" (" " " RESOURces)
   "AFIVISIT" (" " " VISITations)
   "AFILIBRA" (" " " LIBRAry)
   It will ask "Length of file?"

c. Type 400 (number of spaces)
   It will ask "Number of fields per record?"

d. Type 10 (number of lines)
   It will ask "How long is each record?"

e. Type 39 (length of line)
   It will ask "Continue?"
   TAKE OUT REGULAR DISK, PUT IN ANNOTATIONS DISK, press "RETURN"

f. Type Y (if you want to continue), type N (if you want to stop).

```
]CATALOG

DISK VOLUME 254

 A 002 HELLO
 A 015 SERVICES-WORKS
 T 035 MLIWORKS
 A 003 FILEREADER
 A 004 RANDREADER
 A 011 FILEFIXER
 A 006 RANDFIXER
 A 010 WORKSHOP/COURSE
 T 009 DAFIWORKS
 A 003 FILESTARTER


]LOAD SERVICES-WORKS
]LIST.

1  ONERR  GOTO 20000
5  GOSUB 30001
10  DIM L$(100),M1$(100),M2$(100),M3$(100),M4$(100),A1$(100),A2$(100),A3$
    (100),A4$(100),A5$(100),A6$(100),A7$(100),A8$(100),A9$(100),A0$(100)

20  REM   START OF MY FNS SECTION
30  PRINT "THIS IS THE INPUT SECTION OF          THE RESOURCE PROGRAMS:
    ": PRINT : PRINT
35  FOR Z = 1 TO 2000
36  NEXT Z
40 F$ = "WORKSHOP/COURSE"
50 AI$ = "AFI" +  LEFT$ (F$,5)
60 LI$ = "MLI" +  LEFT$ (F$,5)
70 FI$ = "DAFI" +  LEFT$ (F$,5)
80  PRINT : PRINT : PRINT : PRINT
90  CALL ( - 936)
100  PRINT "**********************************"
110  PRINT "         THE SERVICE YOU HAVE"
120  PRINT
130  PRINT "         REQUESTED IS..."
140  PRINT : PRINT : PRINT "              ";F$: PRINT : PRINT "IS THIS
    CORRECT?"
150  INPUT YN$
160  IF  LEFT$ (YN$,1) = "N" GOTO 32500
170  PRINT : PRINT : PRINT "*****PLEASE NOTE*****": PRINT : PRINT "DO NOT
    .TRY TO INPUT INFO ON ANY OTHER  SERVICES."
180  PRINT : PRINT "INSTEAD,IF YOU WANT TO": PRINT "ENTER A NEW SERVICE,T
    YPE;": PRINT ,"RUN SERVICES": PRINT "AND THEN YOU CAN ENTER THE NEW"
    : PRINT "SERVICE NAME"
190  FOR K = 1 TO 10000: NEXT K
200 D$ =  CHR$ (4)
210  PRINT : PRINT : PRINT : PRINT
220  PRINT : PRINT : PRINT "PLEASE TAKE NOTE!!": PRINT : PRINT : PRINT "T
    O STOP ADDING FILES, TYPE..."
230  PRINT "STOP": PRINT : PRINT : PRINT "PLEASE WRITE THIS DOWN."
240  FOR K = 1 TO 8000: NEXT K
250  CALL - 936
```

```
260  PRINT "PLEASE BEGIN INPUTTING, USING": PRINT "THE FOLLOWING FORMAT":
     PRINT "RECORD NUMBER / RESOURCE STRENGTHS"
270  PRINT : PRINT : PRINT "TO FIND STARTING RECORD, USE FILEREADER"
280 I = 1
290  INPUT L$(I): IF L$(I) = "STOP" THEN ST = 1:I = I - 1: GOTO 490
300 S = 1
310 S = S + 1
320 RN$ =  LEFT$ (L$(I),S)
330  IF  NOT ( MID$ (L$(I),S,1) = " ") GOTO 310
340 RN(I) =  VAL (RN$)
350  PRINT "INPUT 4 LINES PLEASE:": INPUT M1$(I),M2$(I),M3$(I),M4$(I)
360  INPUT "ANNOTATIONS?";YN$: IF  NOT ("Y" =  LEFT$ (YN$,1)) GOTO 380
370  PRINT "YOU HAVE TEN LINES"
375  INPUT A1$(I),A2$(I),A3$(I),A4$(I),A5$(I),A6$(I),A7$(I),A8$(I),A9$(I)
     ,A0$(I)
380  PRINT "NEXT RECORD": PRINT "RECORD NUMBER        RESOURCE CODES"
390  REM  NEXT SECT. CHANGES SPACES INTO  CR;STORES A COUNT OF SPACES AS
     SECOND RECORD, A FILE # AS FIRST
400 SPCT(I) = 0
410  FOR DX = 1 TO  LEN (L$(I))
420 SH$ =  MID$ (L$(I),DX,1)
430  IF SH$ (  ) " " THEN  GOTO 460
432  IF  MID$ (L$(I),DX + 1,1) = " " THEN L$(I) =  LEFT$ (L$(I),(DX - 1))
      +  RIGHT$ (L$(I),( LEN (L$(I)) - DX)): GOTO 432
440 SPCT(I) = SPCT(I) + 1
450 L$(I) =  LEFT$ (L$(I),(DX - 1)) +  CHR$ (13) +  RIGHT$ (L$(I),( LEN (
    L$(I)) - DX))
460  NEXT DX
470  IF I = 100 THEN  GOSUB 490: GOTO 280
480 I = I + 1: GOTO 290
490  PRINT D$;"APPEND ";FI$
500  REM  ?D$;"APPEND WORKSHP/COURSE"
510  PRINT D$;"WRITE ";FI$
520 OI = I
530  FOR I = 1 TO OI
540  PRINT SPCT(I)
550  PRINT L$(I)
560  NEXT I
570  PRINT D$;"CLOSE ";FI$
580  PRINT D$;" OPEN ";LI$;",L80"
585  FOR I = 1 TO OI
590  PRINT D$;"WRITE ";LI$;",R";RN(I)
592 SP$ = "
595  IF  LEN (M1$(I)) = 0 THEN  PRINT : GOTO 597
596  PRINT  LEFT$ ((M1$(I) + SP$),19)
597  IF  LEN (M2$(I)) = 0 THEN  PRINT : GOTO 599
598  PRINT  LEFT$ ((M2$(I) + SP$),19)
599  IF  LEN (M3$(I)) = 0 THEN  PRINT : GOTO 601
600  PRINT  LEFT$ ((M3$(I) + SP$),19)
601  IF  LEN (M4$(I)) = 0 THEN  PRINT : GOTO 605
602  PRINT  LEFT$ ((M4$(I) + SP$),19)
605  NEXT I
610  PRINT D$;"CLOSE ";LI$
615  PRINT "PLACE THE ANNOTATION DISK IN THE DRIVE"
```

```
616 GET DU$
617 PRINT DU$
620 PRINT D$;"OPEN ";AI$;",L400"
625 FOR I = 1 TO OI
630 PRINT D$;"WRITE ";AI$;",R";RN(I)
632 IF LEN (A1$(I)) = 0 THEN PRINT : GOTO 636
634 PRINT LEFT$ ((A1$(I) + SP$),39)
636 IF LEN (A2$(I)) = 0 THEN PRINT : GOTO 640
638 PRINT LEFT$ ((A2$(I) + SP$),39)
640 IF LEN (A3$(I)) = 0 THEN PRINT : GOTO 644
642 PRINT LEFT$ ((A3$(I) + SP$),39)
644 IF LEN (A4$(I)) = 0 THEN PRINT : GOTO 648
646 PRINT LEFT$ ((A4$(I) + SP$),39)
648 IF LEN (A5$(I)) = 0 THEN PRINT : GOTO 652
650 PRINT LEFT$ ((A5$(I) + SP$),39)
652 IF LEN (A6$(I)) = 0 THEN PRINT : GOTO 656
654 PRINT LEFT$ ((A6$(I) + SP$),39)
656 IF LEN (A7$(I)) = 0 THEN PRINT : GOTO 660
658 PRINT LEFT$ ((A7$(I) + SP$),39)
660 IF LEN (A8$(I)) = 0 THEN PRINT : GOTO 664
662 PRINT LEFT$ ((A8$(I) + SP$),39)
664 IF LEN (A9$(I)) = 0 THEN PRINT : GOTO 668
666 PRINT LEFT$ ((A9$(I) + SP$),39)
668 IF LEN (A0$(I)) = 0 THEN PRINT : GOTO 680
670 PRINT LEFT$ ((A0$(I) + SP$),39)
672 PRINT LEFT$ ((A0$(I) + SP$),39)
680 NEXT I
690 PRINT D$;"CLOSE ";AI$
700 IF ST THEN GOTO 32767
710 RETURN
20000 REM *********ERROR TRAPPING****
20005 CALL 768
20010 ERR = PEEK (222)
20020 ELINE = PEEK (218) + PEEK (219) * 256
20030 IF ERR = 53 AND ELINE = 320 THEN PRINT "PLEASE REENTER, ": GOTO 2
    90
20900 PRINT "ERROR ";ERR,"AT LINE ";ELINE
29999 PRINT " ": PRINT D$;"CLOSE "
30000 GOTO 32767
30001 POKE 768,104: POKE 769,168: POKE 770,104: POKE 771,166: POKE 772,2
    23: POKE 773,154: POKE 774,72: POKE 775,152: POKE 776,72: POKE 777,9
    6
30010 RETURN
32500 PRINT : PRINT : PRINT : PRINT : PRINT
32505 PRINT "THIS IS THE ";F$;" DISK"
32510 PRINT : PRINT : PRINT "PLEASE INSERT THE CORRECT DISK IF YOU": PRINT
    "NEED ANOTHER SERVICE."
32767 END
```

```
]LOAD FILEREADER
]LIST

1  DIM L$(100)
5  ONERR  GOTO 25000
10 D$ =  CHR$-(4)
15 INPUT "FILE NAME?";FI$
20  PRINT D$;"OPEN ";FI$
25  PRINT D$;"READ ";FI$
28  INPUT SPCT
29  INPUT RN: PRINT "RN=";RN;
30  FOR SC = 1 TO SPCT: INPUT L$(SC): NEXT SC
32  FOR I = 1 TO SPCT: PRINT L$(I),: NEXT I
33  PRINT
35  GOTO 28
40  PRINT D$;"CLOSE ";FI$
50  GOTO 32000
25000 ERR =  PEEK (222)
25005 EL =  PEEK (218) +  PEEK (219) * 256
25100  PRINT "ERROR CODE:";ERR,"AT LINE:";EL
25110  IF ERR = 5 AND ELINE = 28 THEN  GOTO 40
32000  PRINT D$;"CLOSE "
32767  END

]LOAD FILEFIXER
]LIST

10  REM  FILEFIXER....
30  REM  *READS SEQ FILES AND ALLOWS CORRECTIONS
50 D$ =  CHR$ (4)
70  ONERR  GOTO 1030
90  INPUT "FILENAME?";FI$
95  GOSUB 250
110  PRINT "THIS PROGRAM ALLOWS YOU TO STEP THROUGH A TEXTFILE AND MAKE C
     ORRECTIONS"
130  PRINT
140  INPUT "DO YOU WANT TO PICK BY RECORD #?";YN$
145  IF  LEFT$ (YN$,1) = "Y" THEN  GOSUB 1400
148  IF ST (  ) 0 GOTO 410
150  PRINT "DO YOU WANT TO START "
170  PRINT "WITH THE FIRST RECORD?"
190  INPUT ST$
210  IF  MID$ (ST$,1,1) = "Y" THEN ST = 1: GOTO 410
230  PRINT "WHAT RECORD DO YOU WANT TO START WITH": INPUT ST: GOTO 410
250  PRINT "TO START READING CONSECUTIVE RECORDS, HIT A RETURN"
270  PRINT D$;"OPEN TEMPFILE"
290  PRINT D$,"CLOSE TEMPFILE"
310  PRINT D$;"DELETE TEMPFILE"
330  PRINT D$;"OPEN TEMPFILE"
350  PRINT D$;"CLOSE TEMPFILE"
370  PRINT D$;"APPEND TEMPFILE"
390  PRINT : PRINT "IF YOU WANT TO CHANGE A RECORD HIT ANY  KEY AND THEN
     RETURN."
```

```
400  RETURN
410  REM  INPUT "L OR N?";DT$
430 DT$ = "L"
450  PRINT D$;"OPEN ";FI$
470  PRINT D$;"APPEND TEMPFILE"
490  PRINT D$;"READ ";FI$
492  IF ST ( 11 GOTO 520
494  FOR SP = 1 TO ( INT (ST / 10))
496  FOR I = 1 TO 10
498  INPUT H$(I)
500  NEXT I
502  PRINT D$;"APPEND TEMPFILE"
504  PRINT D$;"WRITE TEMPFILE"
506  FOR I = 1 TO 10
508  PRINT H$(I):.NEXT I
510  PRINT D$;"CLOSE TEMPFILE"
512  PRINT D$;"READ ";FI$
514 ST = ST - 10
516  NEXT SP
520  IF ST = 1 GOTO 690
530  FOR SP = 1 TO ST - 1: INPUT DU$
550  PRINT D$;"APPEND TEMPFILE"
570  PRINT D$;"WRITE TEMPFILE": PRINT DU$
590  PRINT D$;"CLOSE TEMPFILE"
610  PRINT D$;"READ ";FI$
630  NEXT SP
650  REM **************************************READ NEXT REC HERE!!!!!
670  PRINT D$;"READ ";FI$
690  IF DT$ = "L" THEN  INPUT LR$: PRINT "RECORD  IS...          ": PRINT
     LR$
710  IF DT$ = "N" THEN  INPUT NR: PRINT "NUMERIC RECORD  IS...": PRINT NR

730  PRINT D$
750  INPUT CH$
770  IF  LEN (CH$) = 0 THEN  GOSUB 1110: GOTO 670
790  PRINT D$
810  PRINT "QUIT, DELETE, CHANGE OR CONTINUE?"
830  INPUT "(Q, D, C OR EMPTY RETURN);";DC$
850  IF  LEN (DC$) = 0 THEN  GOSUB 1110: GOTO 670
870  IF  LEFT$ (DC$,1) = "Q" GOTO 1210
890  IF  LEFT$ (DC$,1) = "D" GOTO 650
910  PRINT "BEGIN INPUTTING RECORD(S)"
930  PRINT "STOP WITH AN EMPTY RETURN"
950  INPUT LR$
970  IF  LEN (LR$) = 0 THEN  GOTO 650
990  GOSUB 1110: GOTO 950
1010  REM **********ERROR HANDLING!!!
1030  PRINT D$;"CLOSE "
1050  PRINT "ERROR =";  PEEK (222)
1070  PRINT "AT LINE #";  PEEK (218) +  PEEK (219) * 25
1080  IF  PEEK (222) = 5 GOTO 1350
1090  GOTO 1390
1110  PRINT D$;"APPEND TEMPFILE"
1130  PRINT D$;"WRITE TEMPFILE"
```

```
1150  PRINT LR$
1170  PRINT D$;"CLOSE TEMPFILE"
1190  RETURN
1210  PRINT D$"CLOSE TEMPFILE"
1230  PRINT D$;"APPEND TEMPFILE"
1250  PRINT D$;"WRITE TEMPFILE"
1270  PRINT LR$
1290  PRINT D$;"READ ";FI$
1310  INPUT LR$
1330  GOTO 1250
1350  INPUT "DO YOU WANT TO ERASE THE OLD FILE?";YN$: IF  LEFT$ (YN$,1) (
      ) "Y" GOTO 1390
1355  PRINT D$;"DELETE ";FI$
1370  PRINT D$;"RENAME TEMPFILE,";FI$
1390  GOTO 32000
1400  REM  **********SUB TO FIND A REC ***
1420  INPUT "WHAT RECORD ARE YOU LOOKING FOR?";LF
1430 LF$ =  STR$ (LF)
1490  PRINT D$;"READ ";FI$
1500  INPUT CT$: INPUT RN$
1510  IF RN$ = LF$ THEN ST = ST + 1: GOTO 1600
1520 ST = ST +  VAL (CT$) + 2
1525  FOR I = 1 TO  VAL (CT$): INPUT DU$: NEXT I
1530  GOTO 1500
1600  PRINT D$
1610  RETURN
32000  END

]LOAD RANDREADER
]LIST

10  ONERR  GOTO 170
20  GOSUB 210
30  INPUT "FILE NAME?";FI$
40 D$ =  CHR$ (4)
50  PRINT "LENGTH OF FILE?": INPUT LE
52  INPUT "NUMBER OF FIELDS PER RECORD?";FS
55  PRINT D$;"CLOSE ";FI$
60  INPUT "CONTINUE?";YN$
70  IF  LEFT$ (YN$,1) = "N" GOTO 240
80 FL = 0
100  INPUT "RECORD #?";RN
110  PRINT D$;"OPEN ";FI$;",L";LE
120  PRINT D$;"READ ";FI$;",R";RN
125  FOR CT = 1 TO FS
130  INPUT REC$
140  PRINT REC$
150  NEXT CT
160  GOTO 55
170 ERR =  PEEK (222):ELINE =  PEEK (218) +  PEEK (219) * 256
180  CALL 768
200  PRINT "ERROR ";ERR,"AT LINE ";ELINE: GOTO 240
210  REM *******MACHINE LANGUAGE*****:ERROR HANDLING
220  POKE 768,104: POKE 769,168: POKE 770,104: POKE 771,166: POKE 772,223
     : POKE 773,154: POKE 774,72: POKE 775,152: POKE 776,72: POKE 777,96
230  RETURN
240  PRINT D$;"CLOSE ";FI$
```

```
]LOAD RANDFIXER
]LIST

10  ONERR  GOTO 490
40  GOSUB 610
70  INPUT "FILE NAME?";FI$
100 D$ =  CHR$ (4)
130  PRINT "LENGTH OF FILE?": INPUT LE
140  INPUT "NUMBER OF FIELSDS PER RECORD?";FS
150  INPUT "HOW LONG IS EACH RECORD?";LN
160  INPUT "CONTINUE?";YN$
190  IF  LEFT$ (YN$,1) = "N" GOTO 700
250  PRINT D$;"CLOSE ";FI$
280  INPUT "RECORD #?";RN
310  PRINT D$;"OPEN ";FI$;",L";LE
340  PRINT D$;"READ ";FI$;",R";RN
350  FOR I = 1 TO FS
370  INPUT REC$
432 LA$(I) = REC$
460  NEXT I
470  PRINT D$;"CLOSE ";FI$
475  GOSUB 1000: GOTO 160
490 ERR =  PEEK (222):ELINE =  PEEK (218) + PEEK (219) * 256
520  CALL 768
550  IF ERR = 5 AND ELINE = 370 THEN FL = 1: RESUME
580  PRINT "ERROR ";ERR,"AT LINE ";ELINE: GOTO 700
610  REM *******MACHINE LANGUAGE*****:ERROR HANDLING
640  POKE 768,104: POKE 769,168: POKE 770,104: POKE 771,166: POKE 772,223
     : POKE 773,154: POKE 774,72: POKE 775,152: POKE 776,72: POKE 777,96
670  RETURN
700  PRINT D$;"CLOSE ";FI$
799  GOTO 32767
1000  PRINT D$;"CLOSE "
1010  FOR J = 1 TO I - 1
1020  PRINT LA$(J),
1030  INPUT "CHANGE?";YN$
1040  IF  LEFT$ (YN$,1) = "Y" GOTO 1200
1050 FA$(J) =  LEFT$ (LA$(J),LN)
1060  GOTO 1300
1200  REM  CHANGE
1205  PRINT "ENTER NEW RECORD"
1210  INPUT NR$
1219 PP$ = "                    "
1220 NR$ =  LEFT$ ((NR$ + PP$),LN)
1230 FA$(J) = NR$
1300  NEXT J
1310  PRINT D$;"OPEN ";FI$;",L";LE
1320  PRINT D$;"WRITE ";FI$;",R";RN
1330  FOR K = 1 TO I - 1: PRINT FA$(K): NEXT K
1340  PRINT D$;"CLOSE ";FI$
1350  RETURN
32767  END
```

```
]LOAD WORKSHOP/COURSE
]LIST

5  DIM L$(100),L(100)
10  ONERR  GOTO 30000
40 D$ =  CHR$ (4)
70  REM  READ RN, CHECK FOR THE ANDED LIST OF CHARACTERISTICS, AND SAVE O
    R DONT THE RN IN AN ARRAY
100  REM  ESTABLISHANARRAYOFCHARACTERIS           TICS(CH) AND O FRE C O
    R DNUM           S(RECS), AND TAKEUP TO AYYRE           C OR DS OR
     UNTILEOF
120 A = 1
130  DIM CH(100),RECS(100)
160  PRINT "PLEASE LIST THOSE CHARACTERISTICS,": PRINT "(BY NUMBER;SEE TH
    E MANUAL),YOU'RE LOOKING FOR."
170  INVERSE : PRINT : PRINT : PRINT "PUT IN CHARACTERISTICS ONE AT A TIM
    E": PRINT : FLASH : PRINT "TYPE A 0.(ZERO) WHEN YOU ARE DONE.": NORMAL

190  PRINT : PRINT : PRINT : PRINT "NOTE*****": PRINT : PRINT "THIS PROGR
    AM WILL ONLY PULL RECORDS WITH *ALL* OF THE CHARACTERISTICS YOU GIVE
    ."
220  PRINT : PRINT : PRINT "IF YOU WANT RECORDS WITH *ANY* OF A SET": PRINT
    " OF CHARACTERISTICS, YOU WILL HAVE TO ": PRINT "DO SEVERAL DIFFEREN
    T RUNS."
250  PRINT : PRINT
280 I = 0
310 I = I + 1: INPUT "CHARACTERISTIC?";CH(I)
340  IF CH(I) = 0 THEN I = I - 1: GOTO 400
370  GOTO 310
400 SE$ = "WORKSHOP/COURSE": PRINT : PRINT : INVERSE : PRINT "THIS IS THE
     ";SE$;" DISK": PRINT : NORMAL : PRINT "IF YOU WANT ANOTHER SERVICE
    THEN PUT ": PRINT "IN ANOTHER DISK NOW!"
402  PRINT "(HIT RETURN TO BEGIN.)": INPUT R$
405 SE$ =  LEFT$ (SE$,5)
410 FI$ = "DAFI" + SE$
430  PRINT D$;"OPEN ";FI$
460  PRINT D$;"READ ";FI$
490  INPUT SPCT
520  INPUT RN
550  FOR SC = 1 TO SPCT: INPUT L$(SC):L(SC) =  VAL (L$(SC)): NEXT SC
580 EL = 0
610  FOR B = 1 TO I
640  FOR Z = 1 TO SPCT
670  IF CH(B) = L(Z) THEN E = 1
700  NEXT Z
730  IF E = 0 THEN EL = 1
740 E = 0: NEXT B
760  IF  NOT EL THEN RECS(A) = RN:A = A + 1
820  GOTO 490
850  PRINT D$;"CLOSE ";FI$
900  REM **********************MLI LOOKUP
920  PRINT : PRINT : PRINT : PRINT : PRINT
940  IF A = 1 THEN  PRINT "NO RESOURCES AVAILABLE THAT MEET ALL": PRINT "
    OF THOSE SPECIFICATIONS!!": GOTO 30120
950  PRINT D$;"OPEN MLI";SE$;",L80"
```

```
960  PRINT D$;"OPEN AFI";SE$;",L400"
980  FOR I = 1 TO (A - 1)
1000  PRINT D$;"READ AFI";SE$;",R";RECS(I)
1010  PRINT "RECORD ";RECS(I)
1020  FOR J = 1 TO 4: INPUT R$: PRINT R$: NEXT J
1040  PRINT : PRINT : PRINT : PRINT
1050  PRINT D$
1060  INPUT "DO YOU WISH TO SEE THE ANNOTATIONS FOR  THIS RECORD?";YN$
1080  IF  LEFT$ (YN$,1) = "N" GOTO 1150
1090  PRINT D$
1095  PRINT "PLACE ANNOTATIONS DISK IN THE DISK DRIVE"
1097  INPUT O$
1099  PRINT D$;"OPEN AFI";SE$;",L400"
1100  PRINT D$;"READ AFI";SE$;",R";RECS(I)
1110  FOR K = 1 TO 10: INPUT R$: PRINT R$: NEXT K
1112  PRINT D$;"CLOSE AFI";SE$
1113  INPUT "REPLACE ORIGINAL DISK, (HIT RETURN WHEN THROUGH).";Z$
1150  NEXT I
1190  PRINT "THOSE ARE ALL OF THE RECORDS FOUND": PRINT "WHICH MATCH ALL
    OF THE CHARACTERISTICS": PRINT "WHICH YOU SPECIFIED."
12000  GOTO 30120
30000 ERR =  PEEK (222)
30030 EL =  PEEK (218) +  PEEK (219) * 256
30040  IF ERR = 5 AND EL = 490 GOTO 850
30060  PRINT "ERROR CODE:";ERR,"AT LINE:";EL
30120  PRINT D$;"CLOSE "
30150  END

]LOAD FILESTARTER
]LIST

1  ONERR  GOTO 32000
10 D$ =  CHR$ (4)
20  INPUT "FILE TO INITIALIZE?";FI$
25  PRINT : PRINT : PRINT :-PRINT : PRINT
26  INPUT "RANDOM FILE?";YN$
27  IF  LEFT$ (YN$,1) <  ) "Y" GOTO 30
28  INPUT "LENGTH?";L$
29 O$ = ",L" + L$
30  PRINT D$;"DELETE ";FI$
35  PRINT D$;"OPEN ";FI$;O$
50  PRINT D$;"CLOSE ";FI$
60  GOTO 32767
32000  REM *******ERROR TRAPPING****
32010 ELINE =  PEEK (218) +  PEEK (219) * 256
32020 ERR =  PEEK (222)
32030  IF ELINE = 30 AND ERR = 6 GOTO 35
32699  PRINT D$;"CLOSE "
32700  PRINT "ERROR ";ERR;" AT LINE ";ELINE
32767  END

]LOAD HELLO
]LIST

10  PRINT "SLAVE DISKETTE","48 K"
20  PRINT "DOS 3.3","(16 SECTORED)"
30  PRINT  CHR$ (4);"RUN WORKSHOP/COURSE"
```

APPENDIX III

Service Offered: ___Workshop/courses ___Visitation/model program ___Library
___Resources to share

Author _____
Last First

Title _____

Publisher _____ Copyright _____

Student Level

1___ Pre-school
2___ Elementary
3___ Middle School/Jr. High School
4___ High School
5___ Adult/Community
6___
7___
8___
9___

Program Management Skills

10___ Educational Management
11___ Project Management
12___ Change in Education
13___ Innovation
14___ Leadership/Supervision
20___ Management by Objectives
21___ Behavioral Objectives
22___ Objectives/Examples
23___ Curriculum Design
30___ Evaluation
31___ Evaluation of Management
32___ Testing for outcomes
40___ Research and Model Programs
41___ Educational Resources
50___ Minimal competency/Basic Skills
60___ Funding/Legislative Guidelines
70___ Fiscal Management
80___ School Facility
90___ Parent Involvement
100___ Community Involvement
110___ Alternative Programs
120___ Counseling/Guidance
130___ Library/Resource Center Management
140___ Collaboratives
150___ Grant Writing
160___

Instructional Management Skills

170___ Classroom Management/Discipline
180___ Classroom Organization
190___ Developmental Approach
191___ Values/Humanistic Approach
200___ Teaching and Learning Styles
201___ Thinking/Problem Solving/ Study Skills
202___ Gifted and Talented
210___ Educational Media Management
220___ Computer
221___ Reference/Background
222___ Classroom Activities
223___ Software
230___ Substitute/Aide/Intern
240___ Volunteer
250___ Individualization
260___ Inquiry-Based Approach

Curriculum Areas

270___ Reading
280___ Writing/Composition/Spelling
290___ Listening
300___ Speech and Drama
310___ Handwriting
320___ Foreign Languages
330___ Bilingual
340___ Creative Arts
350___ Movement/Sports/Games
360___ Science
370___ Environmental Education
371___ Reference/Background
372___ Classroom Application
380___ Energy Education
381___ Reference/Background
382___ Classroom Application
383___ Alternative Energy Sources/ Conservation
384___ Policy/Legal Issues
390___ Nutrition
391___ Reference/Background
392___ Classroom Application
400___ Health Education
401___ Drug/Alcohol/Smoking
402___ Family Life
403___ Sex Education
404___ Safety/First Aid
410___ Home Economics

III a

COMPUTERIZED RETRIEVAL SYSTEM

420____Consumer Economics
430____Social Studies
440____Local History
441____ Reference/Background
442____ Classroom Application
450____Law Education
460____Multi-cultural Education
470____Sex Equity Education
480____
490____
500____Math
510____Metrics
511____ Reference/Background
512____ Classroom Application
520____Thinking/Problem Solving
530____
540____Business/Commercial
550____Industrial Arts
560____Occupational/Vocational
570____Career/Vocational Awareness
580____
590____

Special Education

600____Program Development
610____Visually Impaired
620____Communication/Speech/Hearing Impaired
630____Learning Disabled/Perceptual Needs
640____Psychological/Emotional Needs
650____Mild/Moderate Needs
660____Severe/Profound Needs
670____Physical/Medical Needs
680____Assessment Techniques
690____General Background
700____Classroom Applications
710____Daily Living Skills
720____Vocational Education
730____Therapeutic Services
740____Special Education Legal Issues
750____Mainstreaming Strategies
760____
770____
780____
790____

Inservice

800____Group Facilitation
810____Logistics/Planning
820____General
830____Model Programs
840____Clearinghouses/Data Bases
850____Philosophy
860____Newsletters

Professional Support

870____Career Exploration
880____Personal Growth
890____Professional Growth
900____Stress/Time Management
910____Certification
920____Adult Education

Annotations:

Note: Coding sheets for Workshop/courses, Visitation/ model program, and Resources to share are like this Library coding sheet, but request name, address and phone number where this does author, title and publisher.