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Database on Minorities and Women in Science, Engineering, and Technology

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Nina W. Kay

Huston-Tillotson College

for

Contracting Officer's Representative
Laurel W. Oliver

ARI Scientific Coordination Office, London
Milton S. Katz, Chief

Basic Research Laboratory
Michael Kaplan, Director

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WM. DARRYL HENDERSON
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This research note discusses a database designed to be used as a resource in research on the education and careers of minority members and women in such quantitative fields as engineering, mathematics, physics, chemistry, computer sciences, and the environmental sciences. The references were selected after an extensive search, both computer and manual. The database contains 370 empirical studies on women and minority members, with variables identified and placed in categories. (OVER)		

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19. Abstract (continued)

The database was developed using INMAGIC software and is accessible by the use of keywords. At the present time, access is possible only through INMAGIC software, and this research note describes how to gain access in that fashion.

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DATABASE ON WOMEN AND MINORITIES IN SCIENCE,
ENGINEERING, AND TECHNOLOGY

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DATABASE ON WOMEN AND MINORITIES IN SCIENCE,
ENGINEERING, AND TECHNOLOGY

DESCRIPTION

The database prepared by CASET as a deliverable in the research project, "A Study to Determine and Test Factors Impacting Upon the Supply of Minority and Women Scientists, Engineers, and Technologists for Defense Industries and Installations" was delivered in print-out form. However, upon request CASET will furnish to ARI a computer tape, as provided for in the Contract MDA903-85-C-0342, page 3, to the following specifications:

"9 Track 6250 bpi tape in either EBCDIC or ASCII format, plus record format containing values for each data element (including missing data codes). Each item (i.e. reference) shall constitute on "line". Each segment of the reference (e.g. author, title, date, etc.) shall constitute a separate field. The longest value shall determine the length of the field, with trailing blanks used to left justify the field."

The CASET database is currently online on a personal computer and is maintained by the INMAGIC database management system. The computerized system includes one record structure file, two printing format files, one data file with several hundred records, and one dictionary file, all in binary form. (Additionally, the system allows for the data file to be "dumped" into ASCII format quickly.) The entire data base management system is transferable via diskettes or magnetic tape, according to contract specifications, at any time. Furthermore, a paper copy of the coding information for each bibliographic citation is available. At the present time, access to the database is possible only through INMAGIC software.

It is anticipated that CASET field operations will be located at NASA/Johnson Space Center for a period of two years. For further information about obtaining a database tape, diskettes, or printouts, please contact:

Dr. Nina W. Kay, Principal Investigator
CASET
c/o NASA/Johnson Space Center
2101 NASA Road One
Houston, TX 77058
(713) 483-9315

HOW TO USE THE DATA BASE

- I. Entering The System
- II. Making Changes/Addition/Deletions To The Data Base
- III. Performing Search

I. ENTERING THE SYSTEM

The personal computer can have several systems stored on the hard disk, each with a separate directory, e.g. Inmagic, the database management system; WordPerfect, the word processing system; DOS, the Disk Operating System; etc. To access the CASET data base usually takes only one command after the "C Prompt," C>. (For the following examples, the underlined print represents what the operator actually types. Words in carets indicate special keys.)

C> cd\inmagic <return>

The cd means change directories to the Inmagic directory. When other systems have been used and a new operator is switching to the data base, it will take two commands after the "C Prompt."

C> cd\inmagic <return>

C> inmagic <return>

The display shows the first menu below:

INMAGIC version 7.0, release 1.0

Serial # 100101

Copyright (c) 1986, Inmagic Inc., Cambridge, Mass.

All rights reserved

MAIN MENU

SELECT	FILE
MAINTAIN	TEACH
DEFINE	CHANGE
AUXILIARY	EXIT

Enter choice (? for help):

The options select and maintain will be the only

items used. Maintain will be used for data entry, data changes, or data deletions and is discussed in Part II. Select will be used for performing searches and is discussed in Part III. The operator chooses the option by typing the first letter of the word selected and the return. The computer responds with:

Enter name of database file (up to 8 characters):

Type the name of the database, see below.

Enter name of database file (up to 8 characters):

casentry <return>

The computer responds with:

Enter Work File ID code:

Type the initial of your first name, see below.

Enter Work File ID code: r <return>

This establishes a temporary computer file (work space) for the operator to continue her work. The computer displays different responses depending on the choice selected. For details see Part II and Part III.

When an assignment is finished, always select the "exit" option by typing e and <return>. After two or three of these "e's" have been typed, the computer will respond once again with the "C Prompt." At this time, do the following:

C> del caset.srr (The last letter corresponds to the initial entered as the work file id.) This command deletes the temporary work space file.

II. MAKING CHANGES/ADDITIONS/DELETIONS TO THE DATA BASE

To ensure consistent data entry, mnemonic devices have been selected to represent each factor. These abbreviations are listed in Appendix A on a coding sheet. All data entered must conform to these patterns! After entering Inmagic, the operator selects the maintain option and return. A second sub-menu appears on the screen as shown below:

<u>INMAGIC - MAINTAIN Menu</u>	
COMPOSE	LOG
ADD	TEACH
REMOVE	EXIT
BUILD	

Transaction log to screen. Enter L to change.

Enter choice (? for help):

The proper category for changes, additions, and deletions is COMPOSE! Type c and <return>.

Enter choice (? for help): c <return>

The computer responds with the following:

INMAGIC - COMPOSE

Enter retrieval key:

ACC

A. Changes

1. Type the desired accession number and return. It will take a while for the computer to find the file but then its contents will appear on the screen.
2. Move the cursor to the desired field for the data change. (Move the cursor by using the four directional keys on the right side of the keyboard, pictured below.)

7	8	9
4	5	6
1	2	3

3. Delete incorrect data by using the back space delete key in the upper righthand corner of the keyboard. Enter the correction.
4. Use function key 2, <F2>, located on the far lefthand side of the keyboard. The computer responds with a message about saving the file. This process takes about 2 minutes. The computer responds with the following:

INMAGIC - COMPOSE

Enter retrieval key:

ACC

If the work is completed, simply <return> and the sub-menu appears on the screen. Select the "exit" option by typing e and <return>. When the original menu appears, again select the exit option by typing e. The C Prompt should appear, and the operator is ready to delete the work space file.

B. Additions

1. Enter the data base maintain and compose menus.
2. Type the desired accession number and return. After a brief wait, the screen will display an empty file. See below:

INMAGIC - COMPOSE

ACC
DB/1
DR/1
AU/1
TI/1
SO/1
YR/1
SP/1
DT/1
AV/1
GO/1
OR/1
FU/1
EV/1
CO/1
ST/1
PC/1
CU/1
ED/1
CR/1
PE/1
EC/1
DA/1
CL/1
CA/1
VT/1
HS/1
COUNSELING/1
EXPECTATIONS/1
ROLE MODEL/1
RETENTION/1
RECRUITMENT/1
BARRIERS/1
SC/1
CC/1
WX/1
AB/1
AT/1
FINANCIAL SUPPORT/1
VA/1
MEASUREMENT/1
INTERVENTION/1

SEX BIAS/1
RACE BIAS/1
INTERNSHIP/1
SAT/1
GPA/1
MATH ANXIETY/1
MILITARY/1
SELF/1
VO/1
IS/1
PG/1
RN/1
CG/1

3. Type all the data and move the cursor by returning OR by using the four directional arrow keys on the righthand side of the keyboard. The correct order for data entry corresponds, for the most part, to the order on the coding sheet. See Appendix A for details of the abbreviations above.

4. To enter repeating fields, e.g. when educational factors has checks in several categories, do the following:

ED/1 Counseling acac mo <F10>

The computer responds with:

ED/1 Counseling acac mo

ED/2

The computer inserts a new line called ED/2. The cursor will be positioned at the beginning of this new line and more data may be added. The F10 key may be used an infinite number of times! If an extra line is put in and there is no data for it, DO NOT worry. There is no way for the operator to delete it; just move the cursor to the next line and continue entering data. When the record is saved, the computer automatically deletes unused lines.

5. When all the data for that record has been entered, use the F2 key. The computer responds with a message about saving the file. This process takes about 2 minutes. The computer responds with the following:

INMAGIC - COMPOSE

Enter retrieval key:

ACC

If the work is completed, simply <return> and the sub-menu appears on the screen. Select the "exit" option by typing e and <return>. The original menu appears and again select the exit option by typing e. The C Prompt should appear and the operator is ready to delete the work space file.

C. Deletions

1. Enter the data base maintain and compose menus.
2. Type the desired accession number and return. After a brief wait, the screen will display a complete file.
3. Hold down the Control <CTRL> key and press d. The computer responds with the following at the bottom of the screen:
Do you wish to delete this record (Y/N)?
Type y, the screen goes blank. It takes about one minute to delete the record. Then the computer responds with the following:

INMAGIC - COMPOSE

Enter retrieval key:

ACC

If the work is completed, simply <return> and the sub-menu appears on the screen. Select the "exit" option by typing e and <return>. The original menu appears and again select the exit option by typing e. The C Prompt should appear and the operator is ready to delete the work space file.

III. PERFORMING SEARCHES

After entering Inmagic, the operator chooses the select option and returns. The screen goes blank except for an asterisk (*) prompt, see below:

INMAGIC - SELECT

Enter command, or press RETURN for list of commands.

*

To proceed the operator types commands which direct the computer to retrieve certain records. The computer numbers each retrieval it performs and indicates the number of records found for each retrieval. Whenever the asterisk appears, the operator can type a new command.

In order to retrieve information, the operator must know which field contains the information desired. The list of fields is called the structure of the data base. (See Page 17 and Appendix A.) Some fields have mnemonic devices and others are complete words. The general syntax is:

* command field name verb specific data,
* get acc = 000001

All commands may be abbreviated to their first letter so only, g acc=000001, retrieves the same file. Once the search is performed the computer responds with the following:

#1 number of records: 1

*

The operator may display or print the results of the search in any order desired by using the "by" option.

*display by au <return> OR *d by au <return>

This command displays the previous search results alphabetically by author.

When printing the results of a search, the operator must tell the computer what format to use in printing the output. Caset printouts use the "all" format.

*print by au using all <return> OR

*p by au u all <return>

This command prints results of the search alphabetically by author using the format called "all."

A variety of searches are possible with Inmagic using many verbs. Statements may contain the following:

<u>EQ</u>	or =	equals (shown above)
<u>LT</u>	or <	less than
<u>LE</u>	or <=	less than or equals
<u>GT</u>	or >	greater than
<u>GE</u>	or >=	greater than or equals
<u>ST</u>		starts with (must use single or double quotes)

CW contains word
CS contains stem

The first five types of searches are self explanatory but be very careful with the inequalities. If the following command is typed in:

* g acc ge 000010 <return>

The computer will end up getting over 900 records which takes about seven or eight minutes.

The "starts with" search allows beginning phrases to locate an article.

* g ti st "Women and minorities <return>

This command would retrieve the following articles:

Women and Minorities in Science,
Women and Minorities in Education,
Women and Minorities Shock the Labor Market, etc.

The "contains word" and "contains stem" search are very similar and will probably be used the most often. Both allow the use of only 1 word (not a phrase)!

* g au cw johnson <return>

Note: Upper case letters are not required!

This retrieves all articles authored by anyone named Johnson. The difference between the two types of searches is in their scope. "Contains word" is a limited search. "Contains stem" allows retrieval of records that contain the base or root of a word.

* g ti cs engineer <return>

This command retrieves articles like the following:

Engineering is Popular Field,
Engineers Pay Scale Declines,
Woman Engineer Sues IBM,
Academic Research Draws Many Engineers, etc.

Searches may be further refined by using the Boolean algebra of "OR, AND, & NOT." "Or" retrieves the union of requests, and "And" retrieves the intersection of requests.

* g acc=000010 or acc=000011 <return>

This command retrieves two files, numbers 10 and 11.

* g ti cw science and ti cw engineering <return>

This command retrieves only articles which contain both the words science and engineering in their titles.

"Not" is the exclusive command.

* g au cw ernest not ti cw math <return>

This command retrieves all articles written by Ernest which do not have the word math in their title.

Commands may also be spread over two or more lines:

* g au cw johnson <return>

The computer responds with the following:

#2 number of records: 5

*

The operator now types:

* and ti cs female <return>

The computer responds with the following:

#2 number of records: 3

*

The operator now types:

* not st cw s <return>

The computer responds with the following:

#2 number of records: 0

No records found. Enter another command.

*

This command retrieves all articles written by Johnson with the word female or females in their title that are primary studies (i.e. not secondary "s" studies). In this case, no records were found.

When exiting the select mode, type e after the asterisk prompt. Oftentimes the computer responds with the following:

Do you wish to store the search in progress (Y/N)?

Type n and <return>. The screen displays the first menu. Select the exit option, and the workspace file is ready to be deleted.

FIELD NAMES

ACC - Accession Number
DB - Database
DR - Date of Retrieval
AU - Author
TI - Title
SO - Source
YR - Year
SP - Sponsor
DR - Document Type
AV - Availability
GO - Goal and Focus
OR - Settings of Research
FU - Funding of Research
EV - Evaluation Component
CO - Cost Component
ST - Type of Study
PC - Population Characteristics
CU - Cultural Factors
ED - Educational Factors
CR - Career Factors
PE - Personal Factors
EC - Economic Factors
DA - Type of Data Used
CL - Measurement (College)
CA - Measurement (Career)

VT - Measurement (Vocational/Technical)

HS - Measurement (High School)

CN - Counseling

EX - Expectations

RO - Role_Model

RE - Retention

RC - Recruitment

BA - Barriers

SC - Scores

CC - Curriculum

WX - Work Experience

AB - Abilities

AT - Attitudes

FS - Financial_Support

VA - Values

ME - Measurement

IT - Intervention

SB - Sex_Bias

RB - Race_Bias

IR - Internship

SA - Sat

GP - GPA

MA - Math_Anxiety

MI - Military

SE - Self

VO - Volume

IS - Issue

PG - Pages

RN - Report Number

CG - Contract/Grant Number

EXAMPLES OF SEARCHES

NOTE: CW = Contains Word
* is a machine prompt for a search request
#5 is a machine prompt naming the results of a search

Documents on Black Females

* get PC cw Black "PC" is the field name for population characteristics.

#1 number of records: 98

* and PC cw F "F" = Females.

#1 number of records: 49 49 Records have black females.

* get DT cw Journal "DT" is the field name for document type.

#2 number of records: 381

* get #1 and #2 This intersects Journals with black females.

#3 number of records: 21

* get DT cw Audio Audio = Audiovisual material.

#4 number of records: 1

* get #1 and #4

#5 number of records: 0

No records found. Enter another command.

* get GO st 'Empirical "GO" is the field name for goal and focus, st = starts with.

#5 number of records: 370

* get #1 and #5

#6 number of records: 39

* get YR cw 1982 "YR" is the field name for year.

#10 number of records: 80

* get #1 and #10

#11 number of records: 3

* get SO st 'JournalofNegroEducation "SO" is the field name for source.

#13 number of records: 4

* get #1 and #13

#14 number of records: 3

* get OR cw Educational "OR" is the field name for research setting.

#3 number of records: 361

* get #1 and #3

#2 number of records: 34

* get CR cw TX TX = Texas

#4 number of records: 1

* get #1 and #4

#6 number of records: 1

* <u>get #2 and OR cw Multi</u>	Multi = Multi-institutional.
#13 number of records: 17	
* <u>get OR cw Industrial</u>	
#10 number of records: 23	
* <u>get #1 and #10</u>	
#11 number of records: 4	
* <u>get #1 and OR cw Governmental</u>	
#14 number of records: 1	
* <u>get #1 and FU cw public</u>	"FU" is the field name for funding.
#15 number of records: 20	
* <u>get #1 and FU cw Corporate</u>	
#16 number of records: 1	
* <u>et #1 and FU cw profit</u>	Profit = Non-Profit
#17 number of records: 3	
* <u>get #1 and EV cw Yint</u>	"EV" is the field name for evaluation, Yint = Yes and internal evaluation.
#18 number of records: 4	
* <u>get #1 and EV cw Yext</u>	Yext = Yes and external evaluation.
#19 number of records: 0	
No records found. Enter another command.	
* <u>get #1 and CO st "Y</u>	"CO" is the field name for cost component, Y = yes.
#19 number of records: 4	

VARIABLES

BLACK FEMALES

Journal Articles	21
Audio-Visual Articles	0
Empirical Studies	39
1982 Publication Date	3
Source: Journal of Negro Education	3
Organizational Setting:	
Educational	34
Texas	1
Multi-institutional	17
Industrial	4
Governmental	1
Source of Funding:	
Public	20
Corporate	1
Non-Profit	3
Evaluation Component:	
Internal	4
External	0
Cost Component	4

Documents Containing Cultural Factors on American
Indian Males and Females

* get PC cw AmerIndian and PC cw M AmerIndian =
American
Indian, M =
Males.

#1 number of records: 14
* get PC cw AmerIndian and PC cw F

#2 number of records: 15
* get CU cw Counseling "CU" is the field name for
Cultural Factors.

#3 number of records: 39
* get #1 and #3

#4 number of records: 1
* get #2 and #3

#5 number of records: 1
* get CU cw Expectations

#6 number of records: 108
* get #1 and #6

#7 number of records: 3
* get #2 and #6

#9 number of records: 3
* get CU cw Model Model = Role Model

#9 number of records: 123
* get #1 and #9

#10 number of records: 6
* get #2 and #9

#11 number of records: 6
* get CU cw Retention

#12 number of records: 130
* get #1 and #12

#13 number of records: 5
* get #2 and #12

#14 number of records: 5
* get CU cw Recruitment

#15 number of records: 11
* get #1 and #15

#16 number of records: 0
No records found. Enter another command.

* get CU cw Barriers

#16 number of records: 242
* get #1 and #16

#17 number of records: 6
* get #17 and CU cw Diff Diff = Differences
perceived in SET careers.

#18 number of records: 2
* get #17 and CU cw Race Race = Race Bias

#20 number of records: 1
* get #2 and #16

#21 number of records: 7

* get #21 and CU cw Diff
#22 number of records: 2
* get #21 and CU cw Race
#23 number of records: 1

CULTURAL FACTORS

VARIABLES	AMERICAN INDIAN MALES	AMERICAN INDIAN FEMALES
Counseling	1	1
Expectations	3	3
Role Model	6	6
Retention	5	5
Recruitment	0	0
Barriers	6	7
Perceived Differences in SET Careers	2	2
Race Bias	1	1

Documents Containing Educational Factors on Hispanic
Males and Females

* get PC cw Hispanic and PC cw M
#1 number of records: 29
* get PC cw Hispanic and PC cw F
#2 number of records: 32
* get ED cw Counseling "ED" is the field name for
Educational Factors.
#3 number of records: 242
* get #1 and #3
#4 number of records: 15
* get #2 and #3
#5 number of records: 17
* get ED cw Expectations
#6 number of records: 76
* get #1 and #6
#7 number of records: 11
* get #2 and #6
#8 number of records: 12
* get ED cw Model
#9 number of records: 231
* get #1 and #9
#10 number of records: 14
* get #2 and #9
#11 number of records: 15
* get ED cw Retention
#12 number of records: 189
* get #1 and #12
#13 number of records: 9
* get #2 and #12
#14 number of records: 10
* get ED cw Recruitment
#15 number of records: 150
* get #1 and #15
#16 number of records: 9
* get #2 and #15
#17 number of records: 10
* get ED cw Barriers
#18 number of records: 221
* get #1 and #18
#19 number of records: 19
* get #2 and #18
#20 number of records: 20
* get ED cw Scores
#21 number of records: 225
* get #1 and #21
#22 number of records: 15
* get #22 and ED cw SAT SAT = SAT/ACT test
scores.
#23 number of records: 4

* get #22 and ED cw Spco

Spco = Special
course/special test
scores.

#24 number of records: 3

* get #1 and #21

#3 number of records: 15

* get #3 and ED cw GPA

GPA = Grade point
average.

#4 number of records: 10

* get #3 and ED cw Rank

Rank = Rank in class.

#5 number of records: 2

* get #2 and #21

#6 number of records: 18

* get #6 and ED cw SAT

#7 number of records: 5

* get #6 and ED cw Spco

#8 number of records: 3

* get #6 and ED cw GPA

#9 number of records: 11

* get #6 and ED cw Rank

#10 number of records: 2

* get #1 and #14

#15 number of records: 2

* get ED cw Curriculum

#16 number of records: 350

* get #1 and #16

#17 number of records: 23

* get #2 and #16

#18 number of records: 26

EDUCATIONAL FACTORS

VARIABLES	HISPANIC MALES	HISPANIC FEMALES
-----------	-------------------	---------------------

Counseling	15	17
Expectations	11	12
Role Model	14	15
Retention	9	10
Recruitment	9	10
Barriers	19	20
Scores	15	18
SAT Test Scores	4	5
Special Test Scores	3	3
Grade Point Average	10	11
Class Rank	2	2
Curriculum	23	26

Documents Containing Career Factors on Women

* get PC cw F
#1 number of records: 396
* get #1 and CR cw Counseling "CR" is the field
name for Career
Factors.
#2 number of records: 13
* get #1 and CR cw Expectations
#3 number of records: 117
* get #3 and CR cw Jc Jc = Job/career/family
expectations.
#4 number of records: 73
* get #3 and CR cw Opp Opp = Advancement opportunity.
#5 number of records: 30
* get #1 and CR cw Model
#6 number of records: 26
* get #1 and CR cw Retention
#7 number of records: 93
* get #1 and CR cw Recruitment
#8 number of records: 50
* get #1 and CR cw Experience Experience : Work
Experience.
#9 number of records: 57
* get #1 and CR cw Barriers
#10 number of records: 91
* and CR cw Sex Sex = Sex Bias.
#10 number of records: 34

CAREER FACTORS

VARIABLES

ALL WOMEN

Counseling	13
Expectations	117
Job/Career/Family Expectations	73
Career Opportunities	30
Role Models	26
Retention	93
Recruitment	50
Work Experience	57
Barriers	91
Sex Bias	34

Documents Containing Personal Factors on Black Males
and Females

* get PC cw Black and PC cw M
#1 number of records: 46
* get PC cw Black and PC cw F
#2 number of records: 49
* get PE cw Ability "PE" is the field name for
Personal Factors.
#3 number of records: 288
* get #1 and #3
#4 number of records: 17
* get #2 and #3
#5 number of records: 18
* get PC cw Attitudes
#6 number of records: 373
* get #1 and #6
#7 number of records: 33
* get #7 and PC cw Int Int = Interest in SET.
#8 number of records: 11
* get #7 and PE cw Ms Ms = Attitudes toward
math/science.
#9 number of records: 11
* get #7 and PE cw Set Set = Recognition of SET
objectives for a career.
#11 number of records: 6
* get #7 and PE cw Stud Stud = Study habits.
#12 number of records: 4
* get #7 and PE cw Mot Mot = Motivated toward
achievement.
#13 number of records: 10
* get #7 and PE cw Self Self = Self concept.
#14 number of records: 12
* get #2 and #6
#15 number of records: 33
* get #15 and PE cw Int
#16 number of records: 11
* get #15 and PE cw Ms
#17 number of records: 11
* get #15 and PE cw Set
#18 number of records: 6
* get #15 and PE cw Stud
#19 number of records: 4
* get #15 and PE cw Mot
#20 number of records: 10
* get #15 and PE cw Self
#21 number of records: 13
* get PE st "Expectation
#22 number of records: 25
* get #1 and #22
#23 number of records: 2

* get #2 and #22
#24 number of records: 2
* get PC cw Values
#3 number of records: 44
* get #1 and #3
#4 number of records: 0
No records found. Enter another command.
* get #2 and #3
#4 number of records: 0
No records found. Enter another command.

PERSONAL FACTORS

VARIABLES	BLACK MALES	BLACK FEMALES
Ability	17	18
Attitudes	33	33
Interest in SET	11	11
Math/Science Attitude	11	11
Recognition of SET objectives for career	6	6
Study Habits	4	4
Motivation to Achieve	10	10
Self Concept	12	13
Expectations	2	2
Values	0	0

Documents Containing Measurements of College,
Vocational/Technical, and High School Variables

* get CL cw Rec "CL" is the field name for College
Measurement, Rec = Recruitment.
#4 number of records: 44
* get CL cw Ret Ret = Retention.
#6 number of records: 38
* get CL cw Grad Grad = Graduation.
#7 number of records: 45
* get CL cw Qual Qual = Quality of life.
#8 number of records: 2
* get CA cw Rec "CA" is the field name for Career
Measurement.
#9 number of records: 21
* get CA cw Ret
#10 number of records: 18
* get CA cw Jobs Jobs = Job satisfaction.
#11 number of records: 14
* get VT cw Rec "VT" is the field name for
Vocational/Technical Measurement.
#12 number of records: 2
* get VT cw Grad
#13 number of records: 2
* get VT cw qual
#14 number of records: 0
No records found. Enter another command.
* get HS cw Rec "HS" is the field name for High
School Measurement.
#14 number of records: 7
* get HS cw Grad
#15 number of records: 8
* get HS cw Qual
#16 number of records: 2
* get VT cw Drop Drop = Drop out rate.
#1 number of records: 1
* get HS cw Drop
#2 number of records: 5

MEASUREMENT

	Recruitment	Retention	Graduation	Quality of Life/Job Satisfaction
College	44	38	45	2
Career	21	18	0	14
Vocational/ Technical	2	1	2	0
High School	7	5	8	2

APPENDIX A

CODING SHEET KEY

The following information is presented in the order data entry occurs under Inmagic's Maintain menu. The label of each field is listed first, next is the complete title associated with each field. Examples are displayed in some cases. The page numbers preceding sets of fields correspond to the coding sheet page numbers.

Coding Sheet - Page 1

ACC	<u>Accession Number</u>
DB/1	<u>Data Base name</u> , e.g. Eric
DR/1	<u>Date of Retrieval</u> , in most cases this refers to the date of the data base search.
AU/1	<u>Author of article</u> , e.g. Johnson BE
TI/1	<u>Title</u>
SO/1	<u>Source of the article</u> . In most cases this is the name of the journal.
YR/1	<u>Year of publication</u> , this field may include the month and date also.
SP/1	<u>Sponsoring organization(s)</u> . Responses here indicate who funded the research.
DT/1	<u>Document Type</u> . These responses include one of the following: book, book chapter, journal, government report, industry report, dissertation, unpublished manuscript, conference paper, bibliography, audio-visual, instructional materials, manual or handbook, college report, and other.
AV/1	<u>Availability</u> . This information indicates where copies of the article may be obtained, e.g. Eric ED100000.

Coding Sheet - Page 2

- GO/1 Goal and Focus. These responses include one of the following: empirical study, research review, theoretical review, position paper, anecdotal, case study, evaluation report, and other.
- OR/1 Settings of Research. The amount of information listed in this field varies across documents. The first entry is either educational, industrial, governmental, or other. This is followed by the geographic location and name of the institution where study participants were found. If the institution is educational, any or all of the following is included: (1) public, private, or proprietary, (2) HS, AS, BS, MS, or PhD (indicating highest degree available), (3) Coed, F, or M (indicating the type of student body), (4) Rely or Reln, for religious affiliation, and (5) Tvy or Tvn, for technical/vocational institute. If the institution is governmental, civilian, military, or laboratory is included as a descriptor.

Coding Sheet - Page 3

- FU/1 Funding of research. These include public, corporate, non-profit, other, or not specified.
- EV/1 Evaluation component. Responses are yint, yext, or n, corresponding to yes-internal, yes-external and no.
- CO/1 Cost component. All entries in this field are preceded by y, indicating yes. Total costs, unit costs, grant amounts, etc. are added.
- ST/1 Type of study, either p for primary or s for secondary.

Coding Sheet - Page 4

PC/1 Population characteristics. These include American Indian (AmerIndian), Anglo, Asian American (AsianAm), Black, Hispanic, mixed minority (mixmin), mixed minority and other (mixmino), or other. Studies where the population is not specified has been coded mixmino. Other information entered is the number of males, females, or total if this is listed.

For the next five fields, factors are coded as mentioned only (mo), unfavorable (unf), favorable (fav), or intervention (int). Each factor has categories which are listed on the coding sheet; these are entered below along with the abbreviated version used for data base entry.

CU/1 Cultural factors.
 Counseling
 Consult Father cf
 Consult Mother cm
 Expectations
 Family expectations f
 Role Model
 Mother in related career motc
 Father in related career fatc
 Mother's educational level mote
 Father's educational level fate
 Retention
 Family moral support fsup
 Recruitment
 Barriers
 Difference perceived in
 status of SET careers
 diff
 Sex Bias (no abbreviation)
 Race Bias (no abbreviation)

Coding Sheet - Page 5

ED/1 Educational factors
 Counseling
 Academic counseling acac
 Career counseling
 matching individuals
 with majors car
 Academic tutoring acat
 Expectations

Role Model
 Teacher, counselor,
 employer, professional
 role models prof -
 Retention
 Support from authorities asup
 Internships (no abbreviation)
 Peer support groups psup
 Recruitment
 Policies on women and minorities pol
 Support from authorities asup
 Barriers
 Type of high school hs
 Teacher qualifications teach
 Sex Bias (no abbreviation)
 Race Bias (no abbreviation)
 Instructional materials instr
 Scores
 SAT/ACT SAT
 Other specialized tests test
 GPA (no abbreviation)
 Rank (no abbreviation)
 Curriculum
 Adequate h/s math and science subjects
 hs
 Extra-curricular SET programs xset
 Math Anxiety (no abbreviation)
 Other specialized courses spco
 Extra-curricular non-SET activities
 xnset

Coding Sheet - Page 7

CR/1 Career factors
 Counseling
 Expectations
 Job/career expectations jc
 Advancement opportunity opp
 Role Model
 Mentor men
 Retention
 Wages and salaries wage
 Advancement opportunity opp
 On the job peer support group psup
 Recruitment
 Networking for job contacts netw
 Work Experience
 Military (no abbreviation)
 Non-military nmil
 Barriers
 Sex Bias (no abbreviation)
 Race Bias (no abbreviation)

Coding Sheet - Page 9

PE/1 Personal factors
 Ability
 Skills for stress management skill
 Aptitude apt
 Hand/eye coordination hec
 Male/female math and spatial differences
 spadif
 Adaptive capability adapt
 Attitudes
 Interest in SET int
 Attitude toward math/science ms
 Recognition of SET objectives for career
 set
 Study habits stud
 Motivated toward achievement mot
 Self-concept, image, self-confidence
 Self
 Expectations
 Values

Coding Sheet - Page 10

EC/1 Economic factors
 Financial Support
 Grant gr
 Scholarship sc
 Internship (no abbreviation)
 Work Study work
 Barriers
 Financial support availability avail
 Effect work on study time work
 Sex Bias (no abbreviation)
 Race Bias (no abbreviation)

DA/1 Type of date used. Entries in this
 field are either cross-sectional
 (Cs), longitudinal (L), follow-up
 (FU), or meta-analysis.

CL/1 College Measurement. This
 information is recruitment (Rec),
 retention (Ret), dropout (Drop),
 stopout (Stop), graduation (Grad),
 grade point average (Ga), quality
 of school life (Qal), change of
 attitude (Catt), transfers (Tran),
 or other.

Coding Sheet - Page 11

CA/1 Career Measurement. This
information is recruitment (Rec),
retention (Ret), length of service
at individual company (Leng), job
satisfaction (Jobs), or other.

VT/1 Vocational/Technical Measurement.
This information is recruitment
(Rec), dropout (Drop), graduation
(Grad), grade average (Ga), quality
of school life (Qual), or other.

HS/1 High School Measurement. This
information is recruitment (Rec),
dropout (Drop), graduation (Grad),
grade average (Ga), quality of
school life (Qual), or other.

Coding Sheet - Page 12

The remaining fields are "check tags" for easier key
word searching. These fields have "x's" in place
whenever a factor has been coded in the earlier portion
of the coding sheet. In some fields no abbreviation is
used.

COUNSELING/1

EXPECTATIONS/1

ROLE MODEL/1

RETENTION/1

RECRUITMENT/1

BARRIERS/1

SC/1 Scores

CC/1 Curriculum

WX/1 Work Experience

AB/1 Abilities

AT/1 Attitudes

FINANCIAL SUPPORT/1

VA/1 Values

MEASUREMENT/1

INTERVENTION/1

SEX BIAS/1

RACE BIAS/1

INTERNSHIP/1

SAT/1

GPA/1

MATH ANXIETY/1

MILITARY/1

SELF/1

The remaining fields are coded on page 1 on the coding sheet. These represent the only fields whose order does not correspond to those on the coding sheet.

VO/1 Volume number of a journal.

IS/1 Issue number of a journal.

PG/1 Page numbers spanned by the document.

RN/1 Report number associated with document, if any.

CG/1 Contract/grant number associated with document, if any.

APPENDIX B

CRITERIA FOR INCLUSION IN DATABASE

Categories A through D include the following:

- Membership in subgroup of American Indian, Asian American, Black, Hispanic, or women.
- United States of American citizenship.
- Published document, including bibliographies, presented papers, and government reports.

Additional criteria for each specific category must be:

- A. Highest Criteria
 - 1. About a SET subject.
 - 2. About a ninth grade or above, postsecondary education, vocational training, or employment.
- B. Second Highest Criteria
 - 1. Not about specific academic majors or occupation but is concerned with information or data about education, training, and jobs.
 - 2. About a ninth grade or above, postsecondary education, vocational training, or employment.
- C. Third Highest Criteria
 - 1. About majors or occupations which are tangential to SET, such as the life sciences (medicine, biology, nutrition, paramedical training, dentistry); geography; meteorologist; heat-transfer technician; television; and radio repair person.
 - 2. About a ninth grade or above, postsecondary education, vocational training, or employment.
- D. Fourth Highest Criteria
 - 1. About majors, courses of study, or occupations which are not SET or tangential to SET. Could be about subjects such as the social and behavioral sciences, law, business, English, foreign languages, and the non-SET trades.
 - 2. About a ninth grade or above, postsecondary education, vocational training, or employment.

- E. Fifth Highest Criteria (useful for background or context only)
1. About other subgroups, including Anglo males.
 2. About elementary and middle school.
 3. Contains general information about one of the subgroups, not particularly related to education, training, or occupation.
 4. Contains data or comparison of education and employments of SETs or subgroups internationally.
 5. About impact of historic, political, economic, social, and cultural forces.
- F. Not relevant at all.

APPENDIX C
THESAURUS HIERARCHY

Ability
 Intervention

AmerIndian

Anglo

AsianAm

Attitudes
 Intervention
 Self
 Intervention

Barriers
 Intervention
 Race Bias
 Sex Bias

Black

Career Factors
 Barriers
 Intervention
 Race Bias
 Sex Bias
 Counseling
 Intervention
 Intervention
 Expectations
 Intervention
 Military
 Race Bias
 Recruitment
 Intervention
 Retention
 Intervention
 Role Model
 Intervention
 Sex Bias
 Work Experience
 Intervention
 Military

Counseling
 Intervention

Cultural Factors

Barriers

Intervention

Race Bias

Sex Bias

Counseling

Intervention

Expectations

Intervention

Intervention

Race Bias

Recruitment

Intervention

Retention

Intervention

Role Model

Intervention

Sex Bias

Curriculum

Intervention

Math Anxiety

Economic Factors

Barriers

Intervention

Race Bias

Sex Bias

Financial Support

Internship

Intervention

Internship

Intervention

Race Bias

Sex Bias

Educational Factors

Barriers

Intervention

Race Bias

Sex Bias

Counseling

Intervention

Curriculum

Intervention

Math Anxiety

Expectations

Grade Point Average (GPA)

Internship

Intervention

Math Anxiety

Intervention
Race Bias
Recruitment
Intervention
Retention
Internship
Intervention
Role Model
Intervention
SAT (test scores)
Scores
Grade Point Average (GPA)
Intervention
SAT (test scores)
Sex Bias

Expectations
Intervention

Financial Support
Internship
Intervention

Grade Point Average (GPA)

Hispanic

Internship
Intervention

Intervention

Math Anxiety
Intervention

Measurement

Military

Personal Factors
Ability
Intervention
Attitudes
Intervention
Self
Expectations
Intervention
Self
Values

Population Characteristics

AmerIndian
Anglo
AsianAm
Black
Hispanic

Race Bias
Intervention

Recruitment
Intervention

Retention
Intervention

Role Model
Intervention

SAT (test scores)
Intervention

Scores
Grade Point Average (GPA)
Intervention
SAT (test scores)

Self
Intervention

Sex Bias
Intervention

Values

Work Experience
Intervention
Military