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

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Dan Ragland

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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.
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.
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 database 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:

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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

<table>
<thead>
<tr>
<th>SELECT</th>
<th>FILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINTAIN</td>
<td>TEACH</td>
</tr>
<tr>
<td>DEFINE</td>
<td>CHANGE</td>
</tr>
<tr>
<td>AUXILIARY</td>
<td>EXIT</td>
</tr>
</tbody>
</table>

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 DATABASE

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:

INMAGIC - MAINTAIN Menu

<table>
<thead>
<tr>
<th>COMPOSE</th>
<th>LOG</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADD</td>
<td>TEACH</td>
</tr>
<tr>
<td>REMOVE</td>
<td>EXIT</td>
</tr>
<tr>
<td>BUILD</td>
<td></td>
</tr>
</tbody>
</table>

Transaction log to screen. Enter L to change.

Enter choice (? for help):

3
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.)

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 database 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
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:
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 "e 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:

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:

EQ or == equals (shown above)
LT or < less than
LE or <= less than or equals
GT or > greater than
GE or >= greater than or equals
ST or ' starts with (must use single or double quotes)
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 'Journal of Negro Education "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

14
* get #2 and OR cw Multi

Multi = Multi-institutional

#13 number of records: 17

* get OR cw Industrial
#10 number of records: 23

* get #1 and #10

#11 number of records: 4

* get #1 and OR cw Governmental
#14 number of records: 1

* get #1 and FU cw public

"FU" is the field name for funding.

#15 number of records: 20

* get #1 and FU cw Corporate
#16 number of records: 1

* get #1 and FU cw profit

#17 number of records: 3

* get #1 and EV cw Yint

"EV" is the field name for evaluation, Yint = Yes and internal evaluation.

#18 number of records: 4

* get #1 and EV cw Yext

Yext = Yes and external evaluation.

#19 number of records: 0

No records found. Enter another command.

* get #1 and CO st "Y"

"CO" is the field name for cost component, Y = yes.

#19 number of records: 4
<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>BLACK FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal Articles</td>
<td>21</td>
</tr>
<tr>
<td>Audio-Visual Articles</td>
<td>0</td>
</tr>
<tr>
<td>Empirical Studies</td>
<td>39</td>
</tr>
<tr>
<td>1982 Publication Date</td>
<td>3</td>
</tr>
<tr>
<td>Source: Journal of Negro Education</td>
<td>3</td>
</tr>
<tr>
<td>Organizational Setting:</td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td>34</td>
</tr>
<tr>
<td>Texas</td>
<td>1</td>
</tr>
<tr>
<td>Multi-institutional</td>
<td>17</td>
</tr>
<tr>
<td>Industrial</td>
<td>4</td>
</tr>
<tr>
<td>Governmental</td>
<td>1</td>
</tr>
<tr>
<td>Source of Funding:</td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>20</td>
</tr>
<tr>
<td>Corporate</td>
<td>1</td>
</tr>
<tr>
<td>Non-Profit</td>
<td>3</td>
</tr>
<tr>
<td>Evaluation Component:</td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>4</td>
</tr>
<tr>
<td>External</td>
<td>0</td>
</tr>
<tr>
<td>Cost Component</td>
<td>4</td>
</tr>
</tbody>
</table>
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
<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>AMERICAN INDIAN MALES</th>
<th>AMERICAN INDIAN FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Expectations</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Role Model</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Retention</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Recruitment</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Barriers</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Perceived Differences in SET Careers</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Race Bics</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
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

#24 number of records:  3
* get #1 and #21
#3 number of records:  15
* get #3 and ED cw GPA

#4 number of records: 10
* get #3 and ED cw Rank
#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

Spco = Special course/special test scores.

GPA = Grade point average.
Rank = Rank in class.
### Educational Factors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hispanic Males</th>
<th>Hispanic Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Expectations</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Role Model</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Retention</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Recruitment</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Barriers</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Scores</td>
<td>15</td>
<td>18</td>
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<tr>
<td>SAT Test Scores</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Special Test Scores</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Grade Point Average</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Class Rank</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Curriculum</td>
<td>23</td>
<td>26</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Variables</th>
<th>All Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling</td>
<td>13</td>
</tr>
<tr>
<td>Expectations</td>
<td>117</td>
</tr>
<tr>
<td>Job/Career/Family Expectations</td>
<td>73</td>
</tr>
<tr>
<td>Career Opportunities</td>
<td>30</td>
</tr>
<tr>
<td>Role Models</td>
<td>26</td>
</tr>
<tr>
<td>Retention</td>
<td>93</td>
</tr>
<tr>
<td>Recruitment</td>
<td>50</td>
</tr>
<tr>
<td>Work Experience</td>
<td>57</td>
</tr>
<tr>
<td>Barriers</td>
<td>91</td>
</tr>
<tr>
<td>Sex Bias</td>
<td>34</td>
</tr>
</tbody>
</table>
### 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
* get #2 and #3
* get PC cw Attitudes
  
  #5 number of records: 18
* get PC cw Int
  
  #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
* get #15 and PE cw Int
  
  #16 number of records: 33
* 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**

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>BLACK MALES</th>
<th>BLACK FEMALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Attitudes</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Interest in SET</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Math/Science Attitude</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Recognition of SET objectives for career</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Study Habits</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Motivation to Achieve</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Self Concept</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Expectations</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Values</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
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
<table>
<thead>
<tr>
<th></th>
<th>Recruitment</th>
<th>Retention</th>
<th>Graduation</th>
<th>Quality of Life/Job Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>College</td>
<td>44</td>
<td>38</td>
<td>45</td>
<td>2</td>
</tr>
<tr>
<td>Career</td>
<td>21</td>
<td>18</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Vocational/Technical</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>High School</td>
<td>7</td>
<td>5</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>ACC</th>
<th>Accession Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB/1</td>
<td>Data Base name, e.g. Eric</td>
</tr>
<tr>
<td>DR/1</td>
<td>Date of Retrieval, in most cases this refers to the date of the data base search.</td>
</tr>
<tr>
<td>AU/1</td>
<td>Author of article, e.g. Johnson BE</td>
</tr>
<tr>
<td>TI/1</td>
<td>Title</td>
</tr>
<tr>
<td>SO/1</td>
<td>Source of the article. In most cases this is the name of the journal.</td>
</tr>
<tr>
<td>YR/1</td>
<td>Year of publication, this field may include the month and date also.</td>
</tr>
<tr>
<td>SP/1</td>
<td>Sponsoring organization(s). Responses here indicate who funded the research.</td>
</tr>
<tr>
<td>DT/1</td>
<td>Document Type. 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.</td>
</tr>
<tr>
<td>AV/1</td>
<td>Availability. This information indicates where copies of the article may be obtained, e.g. Eric ED100000.</td>
</tr>
</tbody>
</table>
GO/I  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/I  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.

FU/I  Funding of research. These include public, corporate, non-profit, other, or not specified.

EV/I  Evaluation component. Responses are yint, yext, or n, corresponding to yes-internal, yes-external and no.

CO/I  Cost component. All entries in this field are preceded by y, indicating yes. Total costs, unit costs, grant amounts, etc. are added.

ST/I  Type of study, either p for primary or s for secondary.

A-2
PC/I 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/I 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) sex
Race Bias (no abbreviation) race

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

A-3
Role Model
Teacher, counselor, employer, professional role models
Retention
Support from authorities asup
Internships (no abbreviation) 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 (jal), change of attitude (Catt), transfers (Tran), or other.

A-5
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.

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
INTERNERSHIP/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.

B-1
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
   Intervention
   Internship
   Intervention
   Internship
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

C-2
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