PD-ABW-434

Trip Report

The Mitchell Group
&
The Ghanaian
Performance Monitoring & Evaluation Project

Robert S. Barcikowski, Ph.D.

Consultant: 22 November through 17 December, 1999

Introduction

The basic purposes of my consultancy were to: 1) obtain scanner hardware and software that would enable the Performance Monitoring & Evaluation Project (PME) to gather achievement data in mathematics and English from pupils in grades 3 and 5; 2) design scan forms to do so; 3) print these scan forms; 4) scan the resultant shaded forms; 5) retrieve the data from the scan forms for use in SPSS; 6) train PME staff in repeating purposes 2) through 5). In what follows I have listed my scope of work and deliverables and provided evidence of their completion.

Step 1: Find and purchase scanner hardware and software

Scope of Work

1. *Research and identify the most appropriate hardware and software needed for the achievement test exercise.*
2. *Work with the TMG home office to procure the necessary hardware and software.*

Deliverables

1. *A set of hardware and software specifications for the QUIPS Test Scan system.*

In Appendix A is the communication Mr. John Pittman of The Mitchell Group (TMG) which resulted in the purchase of the OpScan 4XP (Model 4/24XP) scanner hardware and of the Bubble Publishing Suite software. These hardware and software were procured by TMG and sent to PME in Ghana.

Step 2: Design, print and scan response forms

Scope of Work

3. *Develop the pupil response forms for the QUIPS Achievement Test.*

Deliverables

2. *A set of pupil response forms for the QUIPS Achievement Test.*
3. *A set of test scan programs needed for successful recording and storing pupil responses in the appropriate database.*

The collection of pupil responses required the designing and printing of bubble response forms. The complete set of these forms for the QUIPS achievement test that were designed for PME is in Appendix B. The first four forms are for the pupils in grades 3 and 5 and record the demographic information and achievement data for these pupils. These forms are examples of forms that have been "slugged", that is, they have information on each pupil included on the form. On the first form, for example, the names of the school, district and region are included and the bubbles for student ID, school ID and other items have been pre-marked. The last three forms are not slugged and are to be used for students who will not have a slugged form. For example, one of the latter forms might be used when more students than were expected are available for testing.

The slugged forms were created by first typing information on each school into an ASCII file. An example of such an ASCII file (gradec.dat) for the comparison schools in this project is shown in Appendix C. Fortran programs (demog3.for and demog5.for in Appendix C) were written to expand the data provided in the latter ASCII data file to provide a line of data for each pupil. An example of a part of the resulting data file (slug5c.dat) follows the Fortran programs in Appendix C. Four such pupil slugged files were created and placed on the PME computer to be used with the scanner. Backup files were also placed on diskettes and given to the Chief of Party, Dr. Elizabeth Barcikowski. The four slug files were:

Slug3c.dat	Grade 3 Comparison Schools	1354 pupils
Slug3p.dat	Grade 3 Partnership Schools	2751 pupils
Slug5c.dat	Grade 5 Comparison Schools	1255 pupils
Slug5p.dat	Grade 5 Partnership Schools	2593 pupils
	Total	7953 pupils

Since each pupil will receive two forms (demographic and achievement), approximately 16,000 slugged forms will be printed for the pupils. Approximately 8,000 blank forms (20 teams with 100 blanks for each of 4 forms) will also be printed yielding 24,000 forms to be printed.

The scan forms are saved in the files in the folders path: c:\Bubble\Myforms\:

dg3.fsf	demographic slugged grade 3
dg3b.fsf	demographic blank (not slugged) grade 3
m_e31.fsf	grade 3 slugged math and English achievement items
m_e31b.fsf	grade 3 blank math and English achievement items
m_e51.fsf	grade 5 slugged math and English achievement items
m_e51b.fsf	grade 5 blank math and English achievement items

When these files are to be printed, rename the slug files, in turn, to Demographics3.txt and open the files in BP Form Shop, and print. Be sure to select "Preslug/text merge" when the Printer Setup is shown.

When the scan forms are ready to be scanned, open your scan forms files (the ones with fsf extensions), one at a time, in BP Scan Shop. Follow the directions as set out in the second lecture shown in Appendix F

Step 3: Develop programs to transfer scanned data into SPSS data sets.

Scope of Work

4. *Develop the SPSS programs needed for transferring the stored data into an SPSS data file with data properly labeled.*

Deliverables

4. *SPSS programs for transferring stored test scan data into SPSS data sets.*

In BP Scan Shop, data for the PME project are transferred to a Print Image file, i.e., an ASCII file with a prn extension. In Appendix E are the SPSS syntax files that are used to transfer the data from the prn files into SPSS data files. Following each syntax file is an example output of the resulting SPSS data file. The SPSS syntax files can be retrieved along the path c:\Bubble\Myforms\SPSS\ in the PME scanner's computer.

Step 4: Train the PME staff in designing, printing , scanning and placing data into SPSS data files.

During a three day period seven members of the PME staff were given two-hour training sessions in designing, scanning and placing data into SPSS data files. The PowerPoint lectures used during these sessions are included in Appendix F. Included in these training sessions were scanning demonstrations and extensive use of homework and peer teaching/learning sessions.

Appendix A

Hardware And Software Procurement

ATT: JOHN PITTMAN

November 3, 1999

Robert S. Barcikowski
19 Canterbury Drive
Athens, OH 45701

John,

Following please find the three quotes that I received for scanners and software (Bubble Publishing Suite).

As I indicated, this machine is the cheapest machine that I could find that includes:

- two-sided scan
- accepts pencil or ink marks
- has a reject hopper for bad sheets.

Please note that the 12 Month Central Exchange Maintenance Program (a plus for use in Ghana) is also the cheapest.

Although this machine is the cheapest, it is manufactured by National Computer Systems (NCS) a large international company which will allow us better service in Ghana.

Also, I checked, and we receive a cheaper price by purchasing this equipment through Scanning Dynamics, Inc. because they pass their discount on to customers of their software.

Cheers,

Bob

(S)(D)(I) Scanning Dynamics, Inc.

3101 Old Highway 8 • Suite 300 • Roseville, MN 55113-1069 "The Bubble Publishing® People"

To: **Robert Barcikowski**

Company: **Ohio University-Main Campus**
Fax: **(740)593-0477**

From: **Gary Wilson**

Email: **gary@bubblepublishing.com**
Phone: **(651) 636-2988 or (800) 493-9590**
Fax: **(651) 636-3465**

Date: **Monday, November 01, 1999**
Pages: **4** *(including this cover)*

Dear Mr. Barcikowski:

Attached as discussed during our recent telephone conversation are Scanning Dynamics' Order Forms outlining the cost to your organization to purchase the Bubble Publishing Suite and an OMR scanner. Each Order Form shows the prices of OMR scanners with the capabilities to read two-sided form marked in either pencil or ink with reject hoppers. The different Order Forms shows models of OMR scanners from three manufacturers. Please let me know if you have any questions or need additional information. I will try to call you later today.

Regards,

Attention: John Pittman

FAX OR MAIL TO:

(S)(D)(I) **Scanning Dynamics, Inc.**
3101 Old Hwy 8 Suite 300
Roseville, MN 55113-1069
FAX: 651-636-3465

(O)(R)(D)(E)(R) (F)(O)(R)(M)

Please attach this order form to your purchase order and fax or mail to Scanning Dynamics, Inc. We look forward to serving you!

Please provide the following information **about the end-user contact** for this software. This name and address will be used for future product announcements and software updates. *(Shipping and billing addresses will be taken from the purchase order.)*

Contact name:	Robert Barcikowski
Company	Ohio University-Main Campus
Title / Department:	/
Contact's mailing address: (if different from shipping address on PO)	321B McCracken
	Athens, OH 45701
Telephone number:	(740)593-4470
FAX number:	(740)593-0477

Qty	Product	Price	Total
1	**Bubble Publishing Suite** Form Shop, Scan Shop, Report Shop	$1,695	$1,695
1	**Annual Support Program** (Optional) 1 year toll-free tech support Software updates (revisions) Discounted software upgrades	$195	$195
1	**OpScan 4XP (Model 4/24XP)** Two-sided, pencil and ink with reject hopper	$6,915	$6,915
1	**12 Month Central Exchange Warranty** (Parts and Labor)	Included	Included
1	**Optional Second 12 Month Central Exchange Maintenance Program** (Parts and Labor)	$384	$384
1	**Shipping**	$10 Ground (US only) Call for other shipping options	$80

Bubble Publishing software can be shipped within 4 hours after receipt of PO via U.S. Post Office Express Mail Service. OpScan 4XP can be shipped within 72 hours after receipt of PO.

FAX OR MAIL TO:

(S)(D)(I) **Scanning Dynamics, Inc.**
3101 Old Hwy 8 Suite 300
Roseville, MN 55113-1069
FAX: 651-636-3465

(O)(R)(D)(E)(R) (F)(O)(R)(M)

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	Athens, OH 45701
Telephone number:	(740)593-4470
FAX number:	(740)593-0477

Qty	Product	Price	Total
1	**Bubble Publishing Suite** Form Shop, Scan Shop, Report Shop	$1,695	$1,695
1	**Annual Support Program** (Optional) ● 1 year toll-free tech support ● Software updates (revisions) ● Discounted software upgrades	$195	$195
1	**Scanning Systems 700-352V** Two-sided, pencil and ink with reject hopper	$7,430	$7,430
1	**12 Month Central Exchange Warranty** (Parts and Labor)	Included	Included
1	**Optional Second 12 Month Central Exchange Maintenance Program** (Parts and Labor)	$475	$475
1	**Shipping**	$10 Ground (US only) Call for other shipping options	$60

Bubble Publishing software can be shipped within 4 hours after receipt of PO via U.S. Post Office Express Mail Service. The 700-352V can be shipped within 5 days after receipt of PO.

FAX OR MAIL TO:

(S)(D)(I) **Scanning Dynamics, Inc.**
3101 Old Hwy 8 Suite 300
Roseville, MN 55113-1069
FAX: 651-636-3465

(O)(R)(D)(E)(R) (F)(O)(R)(M)

Please attach this order form to your purchase order and fax or mail to Scanning Dynamics, Inc. We look forward to serving you!

Please provide the following information **about the end-user contact** for this software. This name and address will be used for future product announcements and software updates. *(Shipping and billing addresses will be taken from the purchase order.)*

Contact name:	Robert Barcikowski
Company	Ohio University-Main Campus
Title / Department:	/
Contact's mailing address: (if different from shipping address on PO)	321B McCracken
	Athens, OH 45701
Telephone number:	(740)593-4470
FAX number:	(740)593-0477

Qty	Product	Price	Total
1	**Bubble Publishing Suite** Form Shop, Scan Shop, Report Shop	$1,695	$1,695
1	**Annual Support Program** (Optional) 1 year toll-free tech support Software updates (revisions) Discounted software upgrades	$195	$195
1	**ScanMark 2500** Two-sided, pencil and ink with reject hopper	$7,310	$7,310
1	**12 Month Central Exchange Warranty** (Parts and Labor)	Included	Included
1	**Optional Second 12 Month Central Exchange Maintenance Program** (Parts and Labor)	$670	$670
1	**Shipping**	$10 Ground (US only) Call for other shipping options	$60

Bubble Publishing software can be shipped within 4 hours after receipt of PO via U.S. Post Office Express Mail Service. The ScanMark 2500 can be shipped within two (2) weeks after receipt of PO.

Appendix B

Scan Forms Designed For PME

TEST 1: P3-P4 DEMOGRAPHICS

PME

SCHOOL NAME: Abu Bonsra L/A

DISTRICT: Adansi West

REGION: Ashanti

SURNAME

FIRST NAME

MI

STUDENT ID

0 1

SCHOOL ID

1 0 6 0 0 0

Region/District Code

0 1 0 2

School Type

- ● Partnership
- ○ Comparison

Grade Level

- ● P3
- ○ P5

School Category

- ○ A School
- ● B School
- ○ C School

Test Occasion

- ● Time 1
- ○ Time 2
- ○ Time 3

Scorer ID

Gender

- ○ Boy
- ○ Girl

Age

Home Language

Maths Textbook

Do you have a maths textbook you can use at home?

- ○ Yes
- ○ No

Do you own the maths textbook that you use?

- ○ Yes
- ○ No

English Textbook

Do you have an English textbook you can use at home?

- ○ Yes
- ○ No

Do you own the English textbook that you use?

- ○ Yes
- ○ No

PLEASE USE NO. 2 PENCIL

RIGHT	WRONG
● ● ●	✓ ○ ⊗ ⊖

12

TEST 1: P5-P6 DEMOGRAPHICS

PME

SCHOOL NAME: Abu Bonsra L/A

DISTRICT: Adansi West

REGION: Ashanti

SURNAME

FIRST NAME

MI

STUDENT ID

0 1

SCHOOL ID

1 0 6 0 0 0

Region/District Code

0 1 0 2

School Type

- ● Partnership
- ○ Comparison

Grade Level

- ○ P3
- ● P5

School Category

- ○ A School
- ● B School
- ○ C School

Test Occasion

- ● Time 1
- ○ Time 2
- ○ Time 3

Scorer ID

Gender

- ○ Boy
- ○ Girl

Age

Home Language

Maths Textbook

Do you have a maths textbook you can use at home?

- ○ Yes
- ○ No

Do you own the maths textbook that you use?

- ○ Yes
- ○ No

English Textbook

Do you have an English textbook you can use at home?

- ○ Yes
- ○ No

Do you own the English textbook that you use?

- ○ Yes
- ○ No

PLEASE USE NO. 2 PENCIL

RIGHT	WRONG

13

TEST 1: P5-P6 MATHEMATICS - ENGLISH

SCHOOL NAME: Abu Bonsra L/A

SCHOOL ID	STUDENT ID	GRADE LEVEL	SCORER ID
1 0 6 0 0 0	0 1	P3 / P5	

PLEASE USE NO. 2 PENCIL

RIGHT | WRONG

Maths Items

Item 1
Item 2
Item 3
Item 4
Item 5
Item 6
Item 7
Item 8
Item 9
Item 10
Item 11
Item 12
Item 13
Item 14
Item 15
Item 16
Item 17
Item 18
Item 19
Item 20
Item 21
Item 22
Item 23
Item 24
Item 25
Item 26
Item 27
Item 28
Item 29
Item 30
Item 31
Item 32
Item 33
Item 34
Item 35
Item 36
Item 37
Item 38
Item 39
Item 40
Item 41
Item 42
Item 43
Item 44
Item 45

English Items

Item 1
Item 2
Item 3
Item 4
Item 5
Item 6
Item 7
Item 8
Item 9
Item 10
Item 11
Item 12
Item 13
Item 14
Item 15
Item 16
Item 17

English Items

Item 18
Item 19
Item 20
Item 21
Item 22
Item 23
Item 24
Item 25
Item 26
Item 27
Item 28
Item 29
Item 30
Item 31
Item 32
Item 33
Item 34
Item 35
Item 36
Item 37
Item 38
Item 39
Item 40
Item 41
Item 42
Item 43
Item 44
Item 45

Oral Items

Item 46
Item 47

TEST 1: P3-P4 DEMOGRAPHICS

PME

SCHOOL NAME:

DISTRICT:

REGION:

SURNAME

FIRST NAME

MI

STUDENT ID

SCHOOL ID

Region/District Code

School Type

- ○ Partnership
- ○ Comparison

Grade Level

- ○ P3
- ○ P5

School Category

- ○ A School
- ○ B School
- ○ C School

Test Occasion

- ○ Time 1
- ○ Time 2
- ○ Time 3

Scorer ID

Gender

- ○ Boy
- ○ Girl

Age

Home Language

Maths Textbook

Do you have a maths textbook you can use at home?

- ○ Yes
- ○ No

Do you own the maths textbook that you use?

- ○ Yes
- ○ No

English Textbook

Do you have an English textbook you can use at home?

- ○ Yes
- ○ No

Do you own the English textbook that you use?

- ○ Yes
- ○ No

PLEASE USE NO. 2 PENCIL

RIGHT	WRONG

15

TEST 1: P3-P4 MATHEMATICS - ENGLISH

SCHOOL NAME:

SCHOOL ID

STUDENT ID

GRADE LEVEL

- P3
- P5

SCORER ID

PLEASE USE NO. 2 PENCIL

RIGHT	WRONG

Maths Items

Item 1
Item 2
Item 3
Item 4
Item 5
Item 6
Item 7
Item 8
Item 9
Item 10
Item 11
Item 12
Item 13
Item 14
Item 15
Item 16
Item 17
Item 18
Item 19
Item 20
Item 21
Item 22
Item 23
Item 24
Item 25
Item 26
Item 27

English Items

Item 1
Item 2
Item 3
Item 4
Item 5
Item 6
Item 7
Item 8
Item 9
Item 10
Item 11
Item 12
Item 13
Item 14
Item 15
Item 16
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Item 27
Item 28
Item 29
Item 30
Item 31
Item 32
Item 33
Item 34

Oral Items

Item 35
Item 36

TEST 1: P5-P6 MATHEMATICS - ENGLISH

SCHOOL NAME:

SCHOOL ID	STUDENT ID	GRADE LEVEL	SCORER ID
		○ P3 ○ P5	

PLEASE USE NO. 2 PENCIL

RIGHT	WRONG

Maths Items

Item 1
Item 2
Item 3
Item 4
Item 5
Item 6
Item 7
Item 8
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Item 10
Item 11
Item 12
Item 13
Item 14
Item 15
Item 16
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English Items

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English Items

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Item 42
Item 43
Item 44
Item 45

Oral Items

Item 46
Item 47

Appendix C

Files Used To Print And Slug Scan Forms

Comparison school file gradec.dat (renamed grade.dat for input to demog5.exe)

```
251
 56  49 Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,396054,0502,2
 13  11 Leklebi Duga L/A Primary,Hohoe,Volta,551074,0904,3
 21  19 Likpe Bakua L.A,Hohoe,Volta,551087,0904,1
 43  46 Logba Akusame Vuinta L/A,Hohoe,Volta,551101,0904,2
 26  29 Ave Dakpa R.C.A,Akatsi,Volta,536037,0901,1
 26  25 Avenorpedo E.P,Akatsi,Volta,536048,0901,2
 36  31 Gefia R/C Primary,Akatsi,Volta,536068,0901,3
 39  34 Adaklu Anfoe E.P Primary,Ho,Volta,546034,0903,2
 23  22 Agorhome R/C,South Tongu (Sogakope),Volta,591013,0912,3
 31  27 Anfoega Akukome E.P,Kpandu,Volta,571008,0908,2
 55  44 Ekon M/A,Cape Coast,Central,286029,0307,2
 29  20 Anweem-Kissi D/C Primary,Komenda-Edina-Eguafo-
Abirem,Central,296017,0309,3
 69  56 Sunyani St. Anselm's Anglican,Sunyani,Brong Ahafo,236106,0210,1
 34  29 Akroforo Methodist Primary,Berekum,Brong Ahafo,206001,0204,3
 32  34 Larteh Anglican Primary,Akwapim North,Eastern,321059,0402,2
 29  21 Koforidua Sarkodee L/A Primary School,New Juaben,Eastern,371071,0412,3
 47  47 Koforidua St. John Bosco Catholic Primary,New
Juaben,Eastern,371075,0412,1
 42  44 Nana Kwaku Boateng Primary A,New Juaben,Eastern,371089,0412,2
 39  25 Dokrochiwa Methodist Primary,Suhum-Kraboa-Coaltar,Eastern,376041,0413,3
 40  38 Asuboi Methodist Primary,Suhum-Kraboa-Coaltar,Eastern,376029,0413,2
 41  26 Adarkwa Methodist Primary,Suhum-Kraboa-Coaltar,Eastern,376004,0413,2
 31  24 Abono R/C Primary,Bosomtwe-Atwima-Kwanwo,Ashanti,151001,0111,3
 40  26 Aburaso Methodist Primary,Bosomtwe-Atwima-Kwanwo,Ashanti,151005,0111,2
 61  40 Ahenema Kokoben D/A Primary,Bosomtwe-Atwima-Kwanwo,Ashanti,151015,0111,1
 22  36 South Suntresu M/A Primary,Kumasi,Ashanti,166401,0114,3
 32  29 Bobriase L/A Primary,Adansi West,Ashanti,106043,0102,2
 14  20 Yabiw Methodist Primary School,Shama-Ahanta East,Western,596132,1001,3
100 101 Tarkwa Methodist Primary,Wassa-Fiase West,Western,646140,1011,1
 20  18 Owlo Catholic Primary,Nadawli,Upper West,521043,0803,3
 38  23 Goli Catholic Primary School,Nadawli,Upper West,521014,0803,2
 68  49 Sombo Catholic Primary,Nadawli,Upper West,521056,0803,1
 68  50 Piina Catholic Primary,Jirapa-Lambussie,Upper West,511039,0801,3
 64  58 Daboya L/A Primary,West Gonja,Northern,426019,0603,1
 11  18 Yawungu R/C Primary,Gushiegu-Karaga,Northern,436051,0605,2
103  99 St. Georges Primary,Bolgatanga,Upper East,491062,0703,2
 31  26 Noryine Primary,Bawku East,Upper East,481104,0701,3
  0   0
```

```
C DEMOG3.FOR WAS WRITTEN ON 12/8/99 BY ROBERT S. BARCIKOWSKI
C TO CREATE THE FILE TO SLUG THE GRADE 3 DEMOGRAPHICS BUBBLE SHEET
C FOR THE FIRST QUIPS ACHIEVEMENT TESTING

C INPUT LINE 1 CONSISTS OF SCHOOL TYPE, GRADE, AND TEST OCCASION
C AS SINGLE DIGITS WITH NO SPACES STARTING IN COLUMN 1, E.G., 131
C DATA AS SHOWN IN FILE GRADE.DAT FOLLOW

      CHARACTER A(75),NUM(50)*2,COMMA*1,BLANK*1,SCHTYPE*1,
     < GRADE*1,TESTOCC*1
      DATA NUM(1)/'01'/,NUM(2)/'02'/,NUM(3)/'03'/,NUM(4)/'04'/,
     <NUM(5)/'05'/,NUM(6)/'06'/,NUM(7)/'07'/,NUM(8)/'08'/,NUM(9)/'09'/,
     <NUM(10)/'10'/,NUM(11)/'11'/,NUM(12)/'12'/,NUM(13)/'13'/,
     <NUM(14)/'14'/,NUM(15)/'15'/,NUM(16)/'16'/,NUM(17)/'17'/,
     <NUM(18)/'18'/,NUM(19)/'19'/,NUM(20)/'20'/,NUM(21)/'21'/,
     <NUM(22)/'22'/,NUM(23)/'23'/,NUM(24)/'24'/,NUM(25)/'25'/,NUM(26)
     </'26'/,NUM(27)/'27'/,NUM(28)/'28'/,NUM(29)/'29'/,NUM(30)/'30'/,
     <NUM(31)/'31'/,NUM(32)/'32'/,NUM(33)/'33'/,NUM(34)/'34'/,
     <NUM(35)/'35'/,NUM(36)/'36'/,NUM(37)/'37'/,NUM(38)/'38'/,
     <NUM(39)/'39'/,NUM(40)/'40'/,NUM(41)/'41'/,NUM(42)/'42'/,
     <NUM(43)/'43'/,NUM(44)/'44'/,NUM(45)/'45'/,NUM(46)/'46'/,
     <NUM(47)/'47'/,NUM(48)/'48'/,NUM(49)/'49'/,NUM(50)/'50'/,
     < COMMA/','/,BLANK/' '/
      OPEN(5,FILE='C:/OLDFORT/GRADE.DAT')
      OPEN(6,FILE='C:/OLDFORT/SLUG3.DAT')
      READ 7, SCHTYPE, GRADE, TESTOCC
    7 FORMAT(3A1)
      NTOT = 0
   11 READ 1, NO3,NO5,A
    1 FORMAT(I3,I4,1X,90A1)
      PRINT 12, NO3, NO5, A
   12 FORMAT(1X,I3,I4,1X,75A1)
      IF (A(1) .EQ. BLANK .AND. A(2) .EQ. BLANK) GO TO 10
      NFIN = 0
      NCOM = 0
      DO 2 I = 1, 75
       IF (A(I) .EQ. COMMA) NCOM = NCOM + 1
       IF (NCOM .EQ. 3) GO TO 13
       NFIN = NFIN + 1
    2 CONTINUE
   13 NFIN = NFIN + 1
      PRINT 16, NFIN
   16 FORMAT(1X,I5)
      RNO3 = NO3
      IF (NO3 .GT. 40) RNO3 = 46
      IF (NO3 .LT. 41) RNO3 = (.15 * RNO3) + RNO3 + .5
      NO3 = RNO3
      PRINT 6, NO3,RNO3
    6 FORMAT(1X,I3,F8.4)
      NFIN1 = NFIN + 1
      NFIN2 = NFIN + 12
      NFIN3 = NFIN2
      NFIN4 = NFIN3 + 1
      DO 3 K = 1, NO3
      WRITE(6,*) (A(I),I=1,NFIN),NUM(K),COMMA,(A(I),I=NFIN1,NFIN2),
     < SCHTYPE,(A(I),I=NFIN3,NFIN4),COMMA,GRADE,COMMA,TESTOCC
    3 CONTINUE
      NTOT = NTOT + NO3
      GO TO 11
   10 PRINT 8,NTOT
    8 FORMAT(1X,'THE TOTAL NUMBER OF SHEETS TO PRINT IS:',I7)
      STOP
      END
```

```
C DEMOG5.FOR WAS WRITTEN ON 12/8/99 BY ROBERT S. BARCIKOWSKI
C TO CREATE THE FILE TO SLUG THE GRADE 5 DEMOGRAPHICS BUBBLE SHEET
C FOR THE FIRST QUIPS ACHIEVEMENT TESTING

C INPUT LINE 1 CONSISTS OF SCHOOL TYPE, GRADE, AND TEST OCCASION
C AS SINGLE DIGITS WITH NO SPACES STARTING IN COLUMN 1, E.G., 131
C DATA AS SHOWN IN FILE GRADE.DAT FOLLOW
C
      CHARACTER A(75),NUM(50)*2,COMMA*1,BLANK*1,SCHTYPE*1,
     < GRADE*1,TESTOCC*1
      DATA NUM(1)/'01'/,NUM(2)/'02'/,NUM(3)/'03'/,NUM(4)/'04'/,
     <NUM(5)/'05'/,NUM(6)/'06'/,NUM(7)/'07'/,NUM(8)/'08'/,NUM(9)/'09'/,
     <NUM(10)/'10'/,NUM(11)/'11'/,NUM(12)/'12'/,NUM(13)/'13'/,
     <NUM(14)/'14'/,NUM(15)/'15'/,NUM(16)/'16'/,NUM(17)/'17'/,
     <NUM(18)/'18'/,NUM(19)/'19'/,NUM(20)/'20'/,NUM(21)/'21'/,
     <NUM(22)/'22'/,NUM(23)/'23'/,NUM(24)/'24'/,NUM(25)/'25'/,NUM(26)
     </'26'/,NUM(27)/'27'/,NUM(28)/'28'/,NUM(29)/'29'/,NUM(30)/'30'/,
     <NUM(31)/'31'/,NUM(32)/'32'/,NUM(33)/'33'/,NUM(34)/'34'/,
     <NUM(35)/'35'/,NUM(36)/'36'/,NUM(37)/'37'/,NUM(38)/'38'/,
     <NUM(39)/'39'/,NUM(40)/'40'/,NUM(41)/'41'/,NUM(42)/'42'/,
     <NUM(43)/'43'/,NUM(44)/'44'/,NUM(45)/'45'/,NUM(46)/'46'/,
     <NUM(47)/'47'/,NUM(48)/'48'/,NUM(49)/'49'/,NUM(50)/'50'/,
     < COMMA/','/,BLANK/' '/
      OPEN(5,FILE='C:/OLDFORT/GRADE.DAT')
      OPEN(6,FILE='C:/OLDFORT/SLUG5.DAT')
      READ 7, SCHTYPE, GRADE, TESTOCC
    7 FORMAT(3A1)
      NTOT = 0
   11 READ 1, NO3,NO5,A
    1 FORMAT(I3,I4,1X,75A1)
C     PRINT 12, NO3, NO5, A
C   12 FORMAT(1X,I3,I4,1X,90A1)
      IF (A(1) .EQ. BLANK .AND. A(2) .EQ. BLANK) GO TO 10
      NFIN = 0
      NCOM = 0
      DO 2 I = 1, 75
       IF (A(I) .EQ. COMMA) NCOM = NCOM + 1
       IF (NCOM .EQ. 3) GO TO 13
       NFIN = NFIN + 1
    2 CONTINUE
   13 NFIN = NFIN + 1
C     PRINT 16, NFIN
C   16 FORMAT(1X,I5)
      RNO5 = NO5
      IF (NO5 .GT. 40) RNO5 = 46
      IF (NO5 .LT. 41) RNO5 = (.15 * RNO5) + RNO5 + .5
      NO5 = RNO5
C     PRINT 6, NO5,RNO5
C    6 FORMAT(1X,I3,F8.4)
      NFIN1 = NFIN + 1
      NFIN2 = NFIN + 12
      NFIN3 = NFIN2
      NFIN4 = NFIN3 + 1
      DO 3 K = 1, NO5
      WRITE(6,*) (A(I),I=1,NFIN),NUM(K),COMMA,(A(I),I=NFIN1,NFIN2),
     < SCHTYPE,(A(I),I=NFIN3,NFIN4),COMMA,GRADE,COMMA,TESTOCC
    3 CONTINUE
      NTOT = NTOT + NO5
      GO TO 11
   10 PRINT 8,NTOT
    8 FORMAT(1X,'THE TOTAL NUMBER OF SHEETS TO PRINT IS:',I7)
      STOP
      END
```

Part of the comparison school slug file for grade 5 (slug5c.dat) which is renamed Demographics3.txt for slugging and printing.

```
SchNAME,DisNAME,RegNAME,StudID,SchID,R_D_Code,SchTYPE,SchCAT,Grade, TestOCC
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,01,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,02,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,03,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,04,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,05,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,06,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,07,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,08,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,09,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,10,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,11,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,12,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,13,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,14,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,15,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,16,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,17,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,18,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,19,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,20,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,21,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,22,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,23,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,24,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,25,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,26,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,27,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,28,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,29,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,30,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,31,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,32,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,33,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,34,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,35,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,36,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,37,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,38,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,39,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,40,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,41,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,42,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,43,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,44,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,45,396054,0502,2,2,5,1
Tamatoku Presbyterian Primary,Dangme-East,Greater Accra,46,396054,0502,2,2,5,1
Leklebi Duga L/A Primary,Hohoe,Volta,01,551074,0904,2,3,5,1
Leklebi Duga L/A Primary,Hohoe,Volta,02,551074,0904,2,3,5,1
Leklebi Duga L/A Primary,Hohoe,Volta,03,551074,0904,2,3,5,1
Leklebi Duga L/A Primary,Hohoe,Volta,04,551074,0904,2,3,5,1
```

Appendix D

Example Shaded Scan Forms And PRN Output File

SPSS programs for transferring stored test scan data into SPSS data sets.

```
DATA LIST FILE = 'C:\Bubble\Myforms\DEMO3.PRN'
 Fixed / Region (f2.0) district (f2.0) sch_id (f6.0)
    stud_id (f2.0) surname (a15) first (a10) schtype (f1.0)
    schcat (f1.0) grade (f1.0) occ (f1.0) scorer (f2.0)
    gender (f1.0) age (f2.0) homelang (f2.0) math_use (f1.0)
    math_own (f1.0) eng_use (f1.0) eng_own (f1.0).
LIST.
execute.
```

```
DATA LIST FILE = 'C:\Bubble\Myforms\DEMO3.PRN'
 Fixed / Region (f2.0) district (f2.0) sch_id (f6.0)
    stud_id (f2.0) surname (a15) first (a10)
    middle (a1) schtype (f1.0)
    schcat (f1.0) grade (f1.0) occ (f1.0) scorer (f2.0)
    gender (f1.0) age (f2.0) homelang (f2.0) math_use (f1.0)
    math_own (f1.0) eng_use (f1.0) eng_own (f1.0).

Data List will read 1 records from C:\Bubble\Myforms\DEMO3.PRN

Variable    Rec   Start     End        Format

REGION        1       1       2        F2.0
DISTRICT      1       3       4        F2.0
SCH_ID        1       5      10        F6.0
STUD_ID       1      11      12        F2.0
SURNAME       1      13      27        A15
FIRST         1      28      37        A10
MIDDLE        1      38      38        A1
SCHTYPE       1      39      39        F1.0
SCHCAT        1      40      40        F1.0
GRADE         1      41      41        F1.0
OCC           1      42      42        F1.0
SCORER        1      43      44        F2.0
GENDER        1      45      45        F1.0
AGE           1      46      47        F2.0
HOMELANG      1      48      49        F2.0
MATH_USE      1      50      50        F1.0
MATH_OWN      1      51      51        F1.0
ENG_USE       1      52      52        F1.0
ENG_OWN       1      53      53        F1.0

LIST.
```

List

REGION	DISTRICT	SCH_ID	STUD_ID	SURNAME	FIRST	MIDDLE	SCHTYPE	SCHCAT	GRADE	OCC	SCORER	GENDER	AGE	HOMELANG	MATH_USE	MATH_OWN	ENG_USE	ENG_OWN
2	30	111111	99	BARCIKOWSKI	ROBERT	S	1	1	3	1	14	1	17	11	1	1	2	2
1	2	106000	1	ZANI-ROBIN	LIZ	R	1	2	5	1	1	2	12	3	1	2	1	1
1	2	106024	1	ZANA	JOE	S	1	3	5	1	15	1	11	1	2	2	1	1
1	2	106114	1	PAMI-OLDS	FRANZ		1	2	5	1	10	1	9	40	2	2	2	2
1	11	151049	1	SAMO	SALLY	S	1	1	5	1	10	2	10	11	2	2	1	1

Number of cases read: 5 Number of cases listed: 5

execute.

```
 * CHANGE DATA FILE (HERE, p3-4mea.prn) USING WORD CHANGE COMMAND
 * CHANGE A BLANK (NO RESPONSE) TO 9.
 * CHANGE AN * (MULTIPLE RESPONSE) TO 8.
 DATA LIST FILE = 'C:\Bubble\Myforms\p3-4mea.prn'
  Fixed / sch_id (f6.0) stud_id (f2.0) grade (f1.0)
          scorer (f2.0) m1 to m5 (5f1.0) m6 to m7 (2a1)
          m8 to m27 (20f1.0) e1 to e6 (6a1) e7 to e10 (4f1.0)
          e11 to e22 (12a1) e23 to e36 (14f1.0).
MISSING VALUES
      scorer (9,8) / m1 to m5 (9,8) / m6 to m7 ("9","8")
    / m8 to m27 (9,8) / e1 to e6 ("9","8") / e7 to e10 (9,8)
      / e11 to e22 ("9","8") / e23 to e36 (9,8) .
 LIST.
 execute.
```

```
* CHANGE DATA FILE (HERE, p3-4mea.prn) USING WORD CHANGE COMMAND
* CHANGE A BLANK (NO RESPONSE) TO 9.
* CHANGE AN * (MULTIPLE RESPONSE) TO 8.
DATA LIST FILE = 'C:\Bubble\Myforms\p3-4mea.prn'
 Fixed / sch_id (f6.0) stud_id (f2.0) grade (f1.0)
         scorer (f2.0) m1 to m5 (5f1.0) m6 to m7 (2a1)
         m8 to m27 (20f1.0) e1 to e6 (6a1) e7 to e10 (4f1.0)
         e11 to e22 (12a1) e23 to e36 (14f1.0).
```

Data List will read 1 records from C:\Bubble\Myforms\p3-4mea.prn

Variable	Rec	Start	End	Format
SCH_ID	1	1	6	F6.0
STUD_ID	1	7	8	F2.0
GRADE	1	9	9	F1.0
SCORER	1	10	11	F2.0
M1	1	12	12	F1.0
M2	1	13	13	F1.0
M3	1	14	14	F1.0
M4	1	15	15	F1.0
M5	1	16	16	F1.0
M6	1	17	17	A1
M7	1	18	18	A1
M8	1	19	19	F1.0
M9	1	20	20	F1.0
M10	1	21	21	F1.0
M11	1	22	22	F1.0
M12	1	23	23	F1.0
M13	1	24	24	F1.0
M14	1	25	25	F1.0
M15	1	26	26	F1.0
M16	1	27	27	F1.0
M17	1	28	28	F1.0
M18	1	29	29	F1.0
M19	1	30	30	F1.0
M20	1	31	31	F1.0
M21	1	32	32	F1.0
M22	1	33	33	F1.0
M23	1	34	34	F1.0
M24	1	35	35	F1.0
M25	1	36	36	F1.0
M26	1	37	37	F1.0
M27	1	38	38	F1.0
E1	1	39	39	A1
E2	1	40	40	A1
E3	1	41	41	A1
E4	1	42	42	A1
E5	1	43	43	A1
E6	1	44	44	A1
E7	1	45	45	F1.0
E8	1	46	46	F1.0
E9	1	47	47	F1.0
E10	1	48	48	F1.0
E11	1	49	49	A1
E12	1	50	50	A1
E13	1	51	51	A1
E14	1	52	52	A1
E15	1	53	53	A1
E16	1	54	54	A1
E17	1	55	55	A1
E18	1	56	56	A1
E19	1	57	57	A1
E20	1	58	58	A1
E21	1	59	59	A1
E22	1	60	60	A1
E23	1	61	61	F1.0
E24	1	62	62	F1.0
E25	1	63	63	F1.0
E26	1	64	64	F1.0

```
E27          1      65      65          F1.0
E28          1      66      66          F1.0
E29          1      67      67          F1.0
E30          1      68      68          F1.0
E31          1      69      69          F1.0
E32          1      70      70          F1.0
E33          1      71      71          F1.0
E34          1      72      72          F1.0
E35          1      73      73          F1.0
E36          1      74      74          F1.0

MISSING VALUES
     scorer (9,8) / m1 to m5 (9,8) / m6 to m7 ("9","8")
   / m8 to m27 (9,8) / e1 to e6 ("9","8") / e7 to e10 (9,8)
     / e11 to e22 ("9","8") / e23 to e36 (9,8) .
LIST.
```

List

The variables are listed in the following order:

```
LINE   1: SCH_ID STUD_ID GRADE SCORER M1 M2 M3 M4 M5 M6 M7 M8 M9 M10 M11 M12 M13
          M14 M15 M16 M17 M18 M19 M20 M21 M22 M23 M24 M25 M26 M27 E1

LINE   2: E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20
          E21 E22 E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33 E34 E35 E36


  SCH_ID: 123456 11 3 14 1 1 1 1 1 C C 1 1 0 1 1 0 1 0 1 0 1 1 0 0 1 0 1 0 1 0 B
      E2: B B B B B 0 1 0 1 B C C B B B B B B B B C 1 1 1 1 0 1 1 1 0 1 1 0 2 2

  SCH_ID: 106000  1 3 14 0 0 0 0 0 B B 0 0 1 1 0 0 1 1 0 0 1 1 0 1 0 1 0 1 0 1 D
      E2: D D D D 9 0 0 0 0 B B B C C C C C C C C 8 0 1 9 0 1 0 1 1 0 1 0 1 2 2

  SCH_ID: 106024  1 3 14 0 0 0 0 0 B C 1 8 1 0 9 0 9 0 9 0 1 9 0 1 9 0 1 9 1 0 B
      E2: B B B B B 1 0 0 0 B B B B C B C 8 B C B C 9 0 0 0 0 1 1 1 1 1 0 0 0 0

  SCH_ID: 106114  1 3  1 0 1 0 1 8 C D 8 1 1 0 1 0 1 0 1 0 1 1 0 1 0 1 0 1 0 1 C
      E2: C C C C C 1 1 0 0 B B B B C B C C B C B C 1 1 1 1 0 1 0 1 1 0 1 0 1 1

  SCH_ID: 151049  1 3 13 1 0 0 0 0 C A 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 9 0 0 0 0 D
      E2: C C B B C 1 1 1 0 B B B B B C C B B B C D 1 1 1 1 0 0 0 0 0 0 1 1 3 2

  SCH_ID: 151057  1 3  1 0 0 0 0 0 C C 0 0 0 0 0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 1 B
      E2: B B B B B 0 0 0 0 B B B B B B B B B B B 0 0 0 0 0 0 0 0 0 0 0 0 0 0

  SCH_ID: 123456 11 3 14 1 1 1 1 1 C C 1 1 0 1 1 0 1 0 1 0 1 1 0 0 1 0 1 0 1 0 B
      E2: B B B B B 0 1 0 1 B C C B B B B B B B B C 1 1 1 1 0 1 1 1 0 1 1 0 2 2

  SCH_ID: 151049  1 3 13 1 0 0 0 0 C A 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 9 0 0 0 0 D
      E2: C C B B C 1 1 1 0 B B B B B C C B B B C D 1 1 1 1 0 0 0 0 0 0 1 1 3 2

  SCH_ID: 106114  1 3  1 0 1 0 1 8 C D 1 1 1 0 1 0 1 0 1 0 1 1 0 1 0 1 0 1 0 1 C
      E2: C C C C C 1 1 0 0 B B B B C B C C B C B C 1 1 1 1 0 1 0 1 1 0 1 0 1 1

  SCH_ID: 106000  1 3 14 0 0 0 0 0 B B 0 0 1 1 0 0 1 1 0 0 1 1 0 1 0 1 0 1 0 1 D
      E2: D D D D 9 0 0 0 0 B B B C C C C C C C C 8 0 1 9 0 1 0 1 1 0 1 0 1 2 2

  SCH_ID: 106024  1 3 14 0 0 0 0 0 B C 1 8 1 0 9 0 9 0 9 0 1 9 0 1 9 0 1 9 1 0 B
      E2: B B B B B 1 0 0 0 B B B B C B C 8 B C B C 9 0 0 0 0 1 1 1 1 1 0 0 0 0

  SCH_ID: 151057  1 3  1 0 0 0 0 0 C C 0 0 0 0 0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 1 B
      E2: B B B B B 0 0 0 0 B B B B B B B B B B B 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Number of cases read:  12    Number of cases listed:  12

execute.
```

```
* CHANGE DATA FILE (HERE, p5-6me.prn) USING WORD CHANGE COMMAND
* CHANGE A BLANK (NO RESPONSE) TO 9.
* CHANGE AN * (MULTIPLE RESPONSE) TO 8.
DATA LIST FILE = 'C:\Bubble\Myforms\p5-6me.prn'
 Fixed / sch_id (f6.0) stud_id (f2.0) grade (f1.0)
         scorer (f2.0) m1 to m11 (11f1.0) m12 to m13 (2a1)
         m14 to m15 (2f1.0) m16 (a1) m17 to m45 (29f1.0)
         e1 to e5 (5a1) e6 to e10 (5f1.0)
         e11 to e23 (13a1) e24 to e47 (24f1.0).
MISSING VALUES
     scorer (9,8) / m1 to m11 (9,8) / m12 to m13 ("9","8") /
         m14 to m15 (9,8) / m16 ("9","8") / m17 to m45 (9,8) /
         e1 to e5 ("9","8") / e6 to e10 (9,8) /
         e11 to e23 ("9","8") / e24 to e47 (9,8).
LIST.
execute.
```

```
* CHANGE DATA FILE (HERE, p5-6me.prn) USING WORD CHANGE COMMAND
* CHANGE A BLANK (NO RESPONSE) TO 9.
* CHANGE AN * (MULTIPLE RESPONSE) TO 8.
DATA LIST FILE = 'C:\Bubble\Myforms\p5-6me.prn'
 Fixed / sch_id (f6.0) stud_id (f2.0) grade (f1.0)
         scorer (f2.0) m1 to m11 (11f1.0) m12 to m13 (2a1)
         m14 to m15 (2f1.0) m16 (a1) m17 to m45 (29f1.0)
         e1 to e5 (5a1) e6 to e10 (5f1.0)
         e11 to e23 (13a1) e24 to e47 (24f1.0).

Data List will read 1 records from C:\Bubble\Myforms\p5-6me.prn
```

Variable	Rec	Start	End	Format
SCH_ID	1	1	6	F6.0
STUD_ID	1	7	8	F2.0
GRADE	1	9	9	F1.0
SCORER	1	10	11	F2.0
M1	1	12	12	F1.0
M2	1	13	13	F1.0
M3	1	14	14	F1.0
M4	1	15	15	F1.0
M5	1	16	16	F1.0
M6	1	17	17	F1.0
M7	1	18	18	F1.0
M8	1	19	19	F1.0
M9	1	20	20	F1.0
M10	1	21	21	F1.0
M11	1	22	22	F1.0
M12	1	23	23	A1
M13	1	24	24	A1
M14	1	25	25	F1.0
M15	1	26	26	F1.0
M16	1	27	27	A1
M17	1	28	28	F1.0
M18	1	29	29	F1.0
M19	1	30	30	F1.0
M20	1	31	31	F1.0
M21	1	32	32	F1.0
M22	1	33	33	F1.0
M23	1	34	34	F1.0
M24	1	35	35	F1.0
M25	1	36	36	F1.0
M26	1	37	37	F1.0
M27	1	38	38	F1.0
M28	1	39	39	F1.0
M29	1	40	40	F1.0
M30	1	41	41	F1.0
M31	1	42	42	F1.0
M32	1	43	43	F1.0
M33	1	44	44	F1.0
M34	1	45	45	F1.0
M35	1	46	46	F1.0
M36	1	47	47	F1.0
M37	1	48	48	F1.0
M38	1	49	49	F1.0
M39	1	50	50	F1.0
M40	1	51	51	F1.0
M41	1	52	52	F1.0
M42	1	53	53	F1.0
M43	1	54	54	F1.0
M44	1	55	55	F1.0
M45	1	56	56	F1.0
E1	1	57	57	A1
E2	1	58	58	A1
E3	1	59	59	A1
E4	1	60	60	A1
E5	1	61	61	A1
E6	1	62	62	F1.0
E7	1	63	63	F1.0

E8	1	64	64	F1.0
E9	1	65	65	F1.0
E10	1	66	66	F1.0
E11	1	67	67	A1
E12	1	68	68	A1
E13	1	69	69	A1
E14	1	70	70	A1
E15	1	71	71	A1
E16	1	72	72	A1
E17	1	73	73	A1
E18	1	74	74	A1
E19	1	75	75	A1
E20	1	76	76	A1
E21	1	77	77	A1
E22	1	78	78	A1
E23	1	79	79	A1
E24	1	80	80	F1.0
E25	1	81	81	F1.0
E26	1	82	82	F1.0
E27	1	83	83	F1.0
E28	1	84	84	F1.0
E29	1	85	85	F1.0
E30	1	86	86	F1.0
E31	1	87	87	F1.0
E32	1	88	88	F1.0
E33	1	89	89	F1.0
E34	1	90	90	F1.0
E35	1	91	91	F1.0
E36	1	92	92	F1.0
E37	1	93	93	F1.0
E38	1	94	94	F1.0
E39	1	95	95	F1.0
E40	1	96	96	F1.0
E41	1	97	97	F1.0
E42	1	98	98	F1.0
E43	1	99	99	F1.0
E44	1	100	100	F1.0
E45	1	101	101	F1.0
E46	1	102	102	F1.0
E47	1	103	103	F1.0

```
MISSING VALUES
     scorer (9,8) / m1 to m11 (9,8) / m12 to m13 ("9","8") /
         m14 to m15 (9,8) / m16 ("9","8") / m17 to m45 (9,8) /
         e1 to e5 ("9","8") / e6 to e10 (9,8) /
         e11 to e23 ("9","8") / e24 to e47 (9,8).
LIST.
```

List

The variables are listed in the following order:

```
LINE   1: SCH_ID STUD_ID GRADE SCORER M1 M2 M3 M4 M5 M6 M7 M8 M9 M10 M11 M12 M13
          M14 M15 M16 M17 M18 M19 M20 M21 M22 M23 M24 M25 M26 M27 M28

LINE   2: M29 M30 M31 M32 M33 M34 M35 M36 M37 M38 M39 M40 M41 M42 M43 M44 M45 E1
          E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E16 E17 E18

LINE   3: E19 E20 E21 E22 E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33 E34 E35
          E36 E37 E38 E39 E40 E41 E42 E43 E44 E45 E46 E47


   SCH_ID: 110664  1 5 14 1 1 0 0 1 1 0 0 1 1 0 C B 9 9 A 1 1 0 0 1 1 0 0 1 1 0 0
      M29: 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 B B C D A 1 1 0 0 1 B C D C B A A B
      E19: C D C B A 1 0 0 1 0 1 0 1 1 1 9 9 0 9 0 9 1 9 0 0 9 2 2 0

   SCH_ID: 106000  1 5 15 1 1 1 0 0 0 1 1 1 0 0 B B 0 1 C 0 1 0 0 0 1 1 1 1 1 1 1
      M29: 1 0 0 1 1 0 0 0 0 0 1 1 1 1 0 0 1 C C C C B 0 1 0 0 1 C C C B B A C C
      E19: C C B B C 9 0 0 0 9 0 9 0 9 0 9 0 9 0 9 0 1 9 0 1 0 3 2 3
```

```
SCH_ID: 106024  1 5 99 1 1 1 1 1 1 1 1 1 1 1 A A 0 1 A 1 1 1 1 1 1 1 1 1 1 1
   M29: 1 1 1 1 1 1 0 1 1 1 1 1 1 1 0 0 1 C D D D D 1 1 0 0 0 B C C C C B B B
   E19: B B B B B 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

SCH_ID: 106114  1 5  1 1 1 0 0 0 0 1 1 1 1 1 C C 1 1 D 1 0 0 0 0 0 0 0 0 0 1 1
   M29: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 1 C C C C C 9 1 1 1 1 C C C C C C B B
   E19: B B B B B 1 1 0 0 0 0 1 1 0 1 9 0 1 0 9 1 0 1 0 0 9 5 5 5

SCH_ID: 151049  1 5  1 0 0 0 0 0 1 0 0 1 0 0 A A 0 1 A 1 1 1 1 1 1 0 0 1 1 1 0
   M29: 0 0 1 1 1 0 0 1 0 0 1 0 1 0 1 0 1 D D D D C 1 0 0 0 0 B B D D D C C C
   E19: C C C B C 9 1 9 1 0 9 1 9 1 1 9 0 9 1 0 0 9 0 0 0 0 2 2 2
```

Number of cases read: 5 Number of cases listed: 5

execute.

Appendix F

PowerPoint Lecture Notes Used To Train PME Staff

SCANNING BUBBLE SHEETS: SCANNING PHASE

Robert S. Barcikowski
The Mitchell Group

REVIEW: The scanning of bubble sheets to retrieve data consists of three phases:

① Printing
② Scanning
③ Analysis

The scanning phase consists of three modes

① Define Booklet Mode
② Scan Booklet Mode
③ Write to File Mode

In *'define booklet mode'* you:

- Open BP Scan Shop
- Open your scan sheet. Your scan sheet is in a file with an *fsf* extension, e.g., dg3.fsf
- Save the resulting scan booklet that is created as a file with a *bpf* extension, e.g., dg3.bpf. The scan booklet tells the scanner what to expect to find on your scan sheet.

In *'scan booklet mode'* you:

- Identify a file, with the extension *srf*, where the scanner will send what it has found from the shaded areas on your scan sheets, e.g., dg3.srf.
- Physically scan each sheet

In *'write to file mode'* you:

- Identify what fields (e.g., grid information) you will send to a file.
- For our achievement analyses we will send our results to what is known as a *Print Image* file the extension *prn*, e.g., dg3.prn.