Technical Analysis

Pennsylvania
System of School Assessment

2002 Writing PSSA
Grade 6 and 9

Data Recognition Corporation

RONALD MEAD, PH.D.
SENIOR PSYCHOMETRICIAN

RICHARD M. SMITH, PH.D.
SENIOR PSYCHOMETRICIAN

KIRSTEN MELBY, M.A.
STATISTICAL ANALYST

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2002 PSSA Grade 6 and 9 Writing

Description

The Pennsylvania System of School Assessment for grade 6 and 9 writing was administered in the fall of 2002. All students were expected to participate; private schools and home-schooled students were permitted to participate as desired. Approximately 140,000 students per grade participated.

The assessment consisted of 15 field-test writing prompts and 2 common writing prompts at each grade. The common prompts used for grade 6 were informational and persuasive modes and narrative and persuasive for grade 9. Each writing sample was scored by one reader. A random sample of 10 percent of the papers was read by a second reader as part of the quality assurance process, but the second scores were not used in the reporting.

Scores were reported in a scale score metric that is analogous to those used for reading and mathematics in grades 5, 8 and 11. As with the other grades, the scale score metric was designed so that the mean school-level scale score for each grade was 1300 and the standard deviation of the school-level scores was 100.

Changes for 2002

A minimum scale score of 700 was implemented for all PSSA Reading, Mathematics and Writing exams in 2002. This minimum was applied to all the PSSA scales. It affected very few students; several schools felt they were being penalized by the presence of some special needs students who took the regular assessment but scored very low. The change was made to reduce the impact of these students on the overall school score.

This was also the first administration for which performance standards (Advanced, Proficient, Basic and Below Basic) have been reported for grade 6 and 9 writing.

A very small number of students at grade 6 and 9 responded to the wrong writing prompts, including prompts for the other grade level. During the handscoring process, data was gathered and reviewed with the Pennsylvania Department of Education (PDE). There were no discernable patterns to the administration of inappropriate prompts.

PDE and DRC agreed that scores should be reported for all students regardless of which prompt they took. Some students who responded to an out-of mode prompt received a student report without state-level summary data. Meaningful state-level data could not be generated for these students because too few students responded to the prompt in that grade level. Sixty-two (62) grade 6 students received reports without state data (less than ½ of 1% of the grade 6 students who took the test). Eighty-eight (88) grade 9 students received reports without state data (less than ½ of 1% of grade 9 students who took the test).

The specific instances of this testing irregularity are outlined in Appendix B.

Scoring

Each writing sample was scored using a domain scoring model with five domains and a four-point rubric.

For a *scorable* paper, the final scale for a paper ranged from five (all ones for the five domains) to twenty (all fours for the five domains). A paper was deemed *nonscorable* if it was blank with no explanation, illegible or deliberately off topic. A nonscorable paper was given scores of **zero** for all domains. A paper was considered a *non-attempt* if it was blank with a suitable explanation. The explanations included *extended absence, withdrawal from school, student reponding to an alternate assessment for writing* and *parental request*. These papers were **not** given scores.

A random sample of 10 percent of the papers was reread by a different reader as a part of the quality assurance process. Tables 1 and 2 below show the inter-reader agreement for writing tasks at each domain for grade 6 and 9, respectively. The total agreement indicates that nearly 100 percent of the readers rated papers similarly.

Table 1
Grade 6 Inter-Reader Agreement for Common Writing Tasks

Common Prompt 1	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5
Exact	79.5	79.8	77.9	76.5	76.2
Adjacent	20.4	20.1	22.0	23.3	23.4
Total Agreement	99.9	99.9	99.9	99.8	99.6
Common Prompt 2	**Domain 1**	**Domain 2**	**Domain 3**	**Domain 4**	**Domain 5**
Exact	76.3	77.1	76.0	74.7	73.9
Adjacent	23.6	22.8	23.6	25.2	26.0
Total Agreement	99.9	99.9	99.6	99.9	99.9

Table 2
Grade 9 Inter-Reader Agreement for Common Writing Tasks

Common Prompt 1	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5
Exact	77.4	78.0	77.0	76.0	74.7
Adjacent	22.6	22.0	22.8	23.8	25.2
Total Agreement	100.0	100.0	99.8	99.8	99.9
Common Prompt 2	**Domain 1**	**Domain 2**	**Domain 3**	**Domain 4**	**Domain 5**
Exact	75.8	78.5	77.8	76.0	75.1
Adjacent	24.2	21.4	22.1	24.0	24.9
Total Agreement	100.0	99.9	99.9	100.0	100.0

Tables 3 and 4 that follow show the correlations among domains and between readers for grade 6 and 9, respectively. The correlation between two readers reading the same paper is approximately 0.85 for grade 9 and approximately 0.87 for grade 6. While not shown in the table, the correlations between two papers are similar to the correlations between readers.

Table 3
Grade 6 Reader and Domain Correlations for Common Tasks

	R1D1	R1D2	R1D3	R1D4	R1D5	Reader 1	R2D1	R2D2	R2D3	R2D4	R2D5	Reader 2
Common Prompt 1: Informational												
R1D1	1.00	0.79	0.79	0.75	0.68	0.90	0.79	0.72	0.71	0.68	0.64	0.79
R1D2		1.00	0.79	0.79	0.66	0.90	0.71	0.81	0.71	0.71	0.63	0.80
R1D3			1.00	0.78	0.70	0.91	0.70	0.71	0.78	0.70	0.65	0.79
R1D4				1.00	0.76	0.91	0.68	0.71	0.70	0.79	0.69	0.80
R1D5					1.00	0.86	0.63	0.63	0.65	0.69	0.80	0.76
Reader 1						1.00	0.78	0.80	0.79	0.80	0.77	0.88
R2D1							1.00	0.79	0.79	0.75	0.70	0.89
R2D2								1.00	0.78	0.78	0.68	0.90
R2D3									1.00	0.78	0.71	0.90
R2D4										1.00	0.77	0.91
R2D5											1.00	0.87
Reader 2												1.00
Common Prompt 2: Persuasive												
R1D1	1.00	0.78	0.79	0.76	0.70	0.89	0.76	0.70	0.71	0.68	0.64	0.77
R1D2		1.00	0.81	0.79	0.68	0.90	0.70	0.78	0.72	0.71	0.64	0.79
R1D3			1.00	0.80	0.71	0.91	0.70	0.72	0.77	0.71	0.66	0.79
R1D4				1.00	0.78	0.92	0.68	0.71	0.71	0.77	0.69	0.79
R1D5					1.00	0.86	0.63	0.63	0.65	0.69	0.78	0.76
Reader 1						1.00	0.77	0.79	0.79	0.79	0.76	0.87
R2D1							1.00	0.79	0.79	0.75	0.69	0.89
R2D2								1.00	0.80	0.78	0.69	0.90
R2D3									1.00	0.79	0.71	0.91
R2D4										1.00	0.78	0.91
R2D5											1.00	0.87
Reader 2												1.00

Table 4
Grade 9 Reader and Domain Correlations for Common Tasks

	R1D1	R1D2	R1D3	R1D4	R1D5	Reader 1	R2D1	R2D2	R2D3	R2D4	R2D5	Reader 2
Common Prompt 1: Narrative												
R1D1	1.00	0.69	0.72	0.66	0.62	0.84	0.73	0.62	0.64	0.61	0.58	0.72
R1D2		1.00	0.78	0.75	0.69	0.89	0.63	0.75	0.68	0.68	0.63	0.76
R1D3			1.00	0.77	0.72	0.90	0.63	0.68	0.73	0.68	0.64	0.76
R1D4				1.00	0.81	0.91	0.60	0.67	0.67	0.74	0.69	0.76
R1D5					1.00	0.88	0.58	0.63	0.64	0.69	0.75	0.75
Reader 1						1.00	0.72	0.76	0.76	0.77	0.75	0.85
R2D1							1.00	0.71	0.73	0.68	0.63	0.84
R2D2								1.00	0.78	0.75	0.69	0.89
R2D3									1.00	0.77	0.72	0.91
R2D4										1.00	0.80	0.91
R2D5											1.00	0.88
Reader 2												1.00
Common Prompt 2: Persuasive												
R1D1	1.00	0.76	0.74	0.70	0.67	0.87	0.73	0.67	0.66	0.63	0.61	0.74
R1D2		1.00	0.77	0.74	0.67	0.89	0.67	0.78	0.69	0.67	0.63	0.77
R1D3			1.00	0.77	0.72	0.90	0.65	0.69	0.76	0.68	0.65	0.77
R1D4				1.00	0.81	0.91	0.63	0.68	0.68	0.76	0.70	0.78
R1D5					1.00	0.88	0.61	0.64	0.65	0.70	0.77	0.76
Reader 1						1.00	0.74	0.78	0.77	0.78	0.76	0.86
R2D1							1.00	0.75	0.73	0.70	0.67	0.86
R2D2								1.00	0.78	0.75	0.69	0.89
R2D3									1.00	0.77	0.72	0.90
R2D4										1.00	0.81	0.91
R2D5											1.00	0.88
Reader 2												1.00

Calibration and Scaling

The previous administrations of the grade 6 and 9 writing test were calibrated and scaled with a proprietary version of Rasch measurement software developed at DRC. In 2002, it was decided to move the calibration and scaling of the grade 6 and 9 Writing tests to publicly available software. The program selected for calibration was WINSTEPS. This software uses the family of Rasch two-facet measurement models as the basis for a variety of Rasch calibration, equating and scaling functions. WINSTEPS is the industry standard for implementing Rasch measurement models.

Because of the shift in calibration programs and the design of the linking between the 2001 and 2002 administrations, it was necessary to design a multileveled approach to the equating and scaling of the 2002 results. The first step was to recalibrate the two operational (common) prompts from the 2001 administration. This was to ensure that the logit step and item values used in linking the two forms were equivalent. Sometimes differences in estimation procedures and different implementation of convergence rules during estimation result in estimates of item and person parameters that may vary slightly. To avoid the possibility that this difference might introduce unexpected differences into the equating process, the 2001 data was recalibrated using the WINSTEPS program with the default convergence criteria.

In using the WINSTEPS program, there are several choices that must be specified. The first is the selection of the measurement model. In this case, the Rasch partial credit model was chosen. The partial credit model estimates the threshold parameters for each item (prompt domain in this assessment) independently and uses the expression δ_{ij} to represent the threshold difficulty. The k-1 thresholds, where k is the number of score categories, replace the item difficulty and global threshold parameters associated with the Rasch rating scale model. There is no item difficulty parameter in the partial credit model.

Some authors suggest that the sum of the threshold difficulties represents the item difficulty, but this characterization ignores the dispersion of the thresholds, which can vary quite widely and still sum to the same value. To facilitate simplification of the output (printed and files), WINSTEPS reports an item difficulty for all items in a partial credit model and adjusts the threshold difficulties to sum to zero. This is a mere notational convention and does not imply that an item difficulty was estimated for each item. The estimation algorithm in WINSTEPS actually estimates the conventional partial credit model.

During the recalibration of the two operational prompts from 2001 for the grade 6 and grade 9 administrations, two WINSTEPS output files, an item file and a step file, were generated that were used to anchor the calibration of Forms A and B in the 2002 administration. Prompt One from the 2001 administration appeared as the matrix prompt on Form B, and Prompt Two from the 2001 administration appeared as the matrix prompt on Form A. The matrix prompt was the first prompt in the 2002 administration and was followed by the two operational (common) prompts. There were 17 different forms

administered in the 2002 administration. Forms A and B contained the two operational prompts from the 2001 administration that were used to link the two administrations to a metric with a common origin. There were 15 additional forms (forms 1-15) that were field-test prompts. A WINSTEPS anchored calibration was run for Forms A and B using the modified item and step files from the 2001 calibration of the two linking matrix prompts. The two common prompts from the 2002 administration were free to vary. Anchoring the item parameter in this calibration forced the origin of the scale back to the origin established in the calibration of the 2001 administration.

The results of this calibration indicated that there was a systematic shift in the difficulty of the domains for each prompt between the 2001 administration as scored domains and the 2002 administration as domains from matrix prompts. Table 5 lists the results for grade 6 Forms A and B. Table 6 lists the results for grade 9 Forms A and B.

Table 5
Grade 6 Item Calibrations for Forms A and B

```
Form A
+-----------------------------------------------------------------------------+
|ENTRY    RAW                        |   INFIT  |  OUTFIT  |SCORE|        |    |
|NUMBER  SCORE   COUNT   MEASURE   ERROR|MNSQ   ZSTD|MNSQ   ZSTD|CORR.|DISPLACE| Domai G |
|-----------------------------------+----------+----------+-----+--------+--------|
|     1  12044    4535      .02A     .03|1.29    9.9|1.50    9.9|  .75|    -.19| P1D1  0 |
|     2  11718    4535      .20A     .03|1.15    6.7|1.21    7.8|  .78|    -.05| P1D2  0 |
|     3  11418    4535      .38A     .03|1.09    4.2|1.12    4.6|  .79|     .06| P1D3  0 |
|     4  11681    4535      .19A     .03|1.08    3.7|1.10    4.1|  .80|     .09| P1D4  0 |
|     5  12090    4535     -.08A     .03|1.14    6.4|1.15    6.1|  .78|     .09| P1D5  0 |
+-----------------------------------------------------------------------------+


Form B
+-----------------------------------------------------------------------------+
|ENTRY    RAW                        |   INFIT  |  OUTFIT  |SCORE|        |    |
|NUMBER  SCORE   COUNT   MEASURE   ERROR|MNSQ   ZSTD|MNSQ   ZSTD|CORR.|DISPLACE| Domai G |
|-----------------------------------+----------+----------+-----+--------+--------|
|     1  11784    4363     -.24A     .03|1.30    9.9|1.38    9.9|  .76|    -.09| P1D1  0 |
|     2  11569    4363     -.09A     .03|1.19    8.3|1.22    8.2|  .77|    -.06| P1D2  0 |
|     3  11530    4363     -.09A     .03|1.10    4.3|1.11    4.2|  .79|     .07| P1D3  0 |
|     4  11520    4363     -.06A     .03|1.07    3.4|1.09    3.5|  .80|     .02| P1D4  0 |
|     5  11777    4363     -.24A     .03|1.10    4.4|1.11    4.7|  .79|     .03| P1D5  0 |
+-----------------------------------------------------------------------------+
```

The numbers listed in the MEASURE column are the values from the 2001 calibration for the two prompts in each grade. The "A" next to each value signifies that this value was *anchored*. WINSTEPS fixed these items at the anchored value. In addition, WINSTEPS calculates what that value would have been if the item difficulty had been determined by the 2002 data. The difference between those two values is listed in the DISPLACE column. The value in this column would be added to the value in the measure column to obtain the new value. Positive values in this column indicate that the item is more difficult in this administration than in the last (anchor) administration and negative values indicate that the item is easier than in the last administration.

Table 6
Grade 9 Item Calibrations for Forms A and B

Form A

ENTRY NUMBER	RAW SCORE	COUNT	MEASURE	ERROR	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	SCORE CORR.	DISPLACE	Domai	G
1	12242	4515	-.09A	.03	1.31	9.9	1.34	9.9	.72	-.08	P1D1	0
2	12261	4515	-.10A	.03	1.16	6.9	1.14	5.0	.75	-.14	P1D2	0
3	12047	4515	.21A	.03	1.13	5.5	1.11	3.5	.75	-.21	P1D3	0
4	12109	4515	-.03A	.03	1.13	5.5	1.12	4.2	.77	.06	P1D4	0
5	11870	4515	-.02A	.03	1.20	8.5	1.24	7.7	.77	.34	P1D5	0

Form B

ENTRY NUMBER	RAW SCORE	COUNT	MEASURE	ERROR	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	SCORE CORR.	DISPLACE	Domai	G
1	14619	5450	-.16A	.03	1.15	6.9	1.16	5.9	.74	-.20	P1D1	0
2	13961	5450	.15A	.03	1.08	4.2	1.07	2.8	.77	-.19	P1D2	0
3	14068	5450	.28A	.03	1.03	1.6	1.01	.4	.76	-.18	P1D3	0
4	14202	5450	-.09A	.03	1.05	2.4	1.05	1.8	.77	.14	P1D4	0
5	14045	5450	-.15A	.03	1.17	7.8	1.20	7.0	.77	.40	P1D5	0

Using the data on the first line of Table 5, Domain 1 from Prompt 1 for grade 6, the anchor value, in the MEASURE column is 0.02. The value in the DISPLACE column is –0.19. Therefore, the item is 0.19 logits easier in this administration than it was in the last. If this was an independent calibration, the logit estimated for the 2002 data would have been –0.17, (0.02 + (-0.19)).

One would like to see all values of 0.0 in the displacement column, indicating that the item difficulty was invariant across the two administrations. However, each item difficulty estimate contains an error component, and the size of that error component is given by the size of the standard error that is found in the ERROR column. This is the standard error for this calibration, not the original 2001 calibration. The standard error from the 2001 calibration was 0.01 so that the standard error of the difference between the two calibrations would be $(.03^2 + .01^2)^{.5}$ or approximately 0.3. Thus, the difference between the two calibrations for Domain 1 from Prompt 1 is approximately 6 standard errors.

There is a fairly clear pattern across the two prompts and the two grades. The first two domains for each prompt were easier in 2002 than in 2001, and the last two domains were harder in 2002 than they were in 2001. The third domain varies, but is significantly easier in 2002 for grade 9.

These two calibrations produced two different equatings between the 2001 form and the 2002 forms. As the link between the forms always contain error, the decision was made to average the two links to produce the final 2002 operational prompt values that would be used to produce the 2002 operational raw score to logit conversion table. The item

values for the two operational prompts (items 6-15) for both forms are shown in Tables 7 and 8 for grade 6 and 9.

Table 7
Grade 6 Common Item Difficulties for Forms A and B

Location	Form A Difficulty	SE	Form B Difficulty	SE	Average
6	-.07	.03	-.02	.03	-.045
7	.24	.03	.23	.03	.235
8	.44	.03	.42	.03	.430
9	.26	.03	.25	.03	.255
10	-.09	.03	-.04	.03	-.065
11	.36	.03	.29	.03	.325
12	.76	.03	.70	.03	.730
13	.81	.03	.78	.03	.795
14	.67	.03	.58	.03	.625
15	.34	.03	.29	.03	.315

Table 8
Grade 9 Common Item Difficulties for Forms A and B

Location	Form A Difficulty	SE	Form B Difficulty	SE	Average
6	.36	.03	.21	.03	.285
7	.34	.03	.19	.03	.265
8	.32	.03	.17	.03	.245
9	.27	.03	.12	.03	.195
10	.31	.03	.16	.03	.235
11	.67	.03	.52	.03	.595
12	.93	.03	.78	.03	.855
13	1.14	.03	.99	.03	1.065
14	.90	.03	.75	.03	.825
15	.96	.03	.81	.03	.885

These averaged item and step values were then entered into anchor files, and the entire acceptable score file was calibrated in WINSTEPS to produce the raw score logit conversion table. This table is found in Table 9 for grade 6 and Table 10 for grade 9.

The "E" after the scores of 0 and 40 indicate that these are estimated based on partial scores, as the estimate for a zero and perfect score in the Rasch model is negative and positive infinity. In WINSTEPS, this partial score is a variable that can range between 0.01 and 0.99. In this calibration, it was set at the default value of 0.30. As a result, the logit reported for a raw score of 0 was estimated for a raw score of 0.3, and the logit listed for a raw score of 40 was estimated for raw score of 39.7.

These logit values were anchored to the 2001 metric and origin through the two linking prompts included as matrix prompts. A second linear conversion was necessary to convert the logits into the standard score scale used to report the results of the grade 6 and 9 Writing test.

Table 9
Grade 6 Raw Score/Logit Conversion Table

SCORE	MEASURE	S.E.
0	-8.99E	1.85
1	-7.72	1.05
2	-6.92	.78
3	-6.40	.67
4	-5.99	.62
5	-5.63	.59
6	-5.29	.57
7	-4.97	.56
8	-4.66	.56
9	-4.34	.56
10	-4.02	.57
11	-3.70	.57
12	-3.38	.57
13	-3.06	.57
14	-2.73	.58
15	-2.39	.59
16	-2.03	.61
17	-1.64	.65
18	-1.18	.70
19	-.64	.77
20	.00	.81
21	.64	.78
22	1.19	.71
23	1.66	.66
24	2.07	.63
25	2.46	.62
26	2.85	.63
27	3.25	.65
28	3.69	.68
29	4.19	.73
30	4.74	.75
31	5.29	.73
32	5.79	.69
33	6.23	.65
34	6.64	.63
35	7.04	.63
36	7.44	.65
37	7.89	.70
38	8.44	.80
39	9.26	1.06
40	10.55E	1.86

Table 10
Grade 9 Raw Score/Logit Conversion Table

SCORE	MEASURE	S.E.
0	-8.28E	1.84
1	-7.04	1.03
2	-6.28	.75
3	-5.81	.63
4	-5.45	.57
5	-5.16	.52
6	-4.90	.50
7	-4.66	.48
8	-4.43	.47
9	-4.22	.46
10	-4.00	.46
11	-3.78	.47
12	-3.56	.48
13	-3.33	.49
14	-3.08	.51
15	-2.81	.54
16	-2.50	.57
17	-2.14	.62
18	-1.71	.70
19	-1.16	.79
20	-.48	.85
21	.21	.80
22	.79	.72
23	1.27	.67
24	1.70	.64
25	2.10	.63
26	2.51	.65
27	2.94	.68
28	3.46	.76
29	4.14	.90
30	5.10	1.03
31	6.06	.90
32	6.73	.76
33	7.25	.68
34	7.68	.64
35	8.09	.64
36	8.50	.65
37	8.95	.70
38	9.49	.80
39	10.31	1.06
40	11.60E	1.86

Once the five domains for the two common prompts were anchored at their final position on the 2001 metric, it was then possible to calculate the raw score logit conversions for the two prompts separately and for each of the domains summed across the two prompts. The calculation of these conversion tables was accomplished in WINSTEPS using the item delete command. All of the domains from the operational prompts were anchored; however, the appropriate domains were deleted from the analysis on each run. A total of seven runs for each grade were needed to calculate the additional conversion tables (two for the two prompts and five for the combined domains across prompts). The raw score/logit conversion tables for the two separate grade 6 prompts are listed in Table 11. The raw score/logit conversion tables for the two separate grade 9 prompts are listed in Table 12.

Table 11
Grade 6 Raw Score/Logit Conversion Tables by Prompt

Prompt 1

```
+------------------------+
| SCORE   MEASURE   S.E.|
+------------------------+
|    0    -8.44E   1.88|
|    1    -7.10    1.10|
|    2    -6.17     .87|
|    3    -5.49     .80|
|    4    -4.87     .78|
|    5    -4.25     .79|
|    6    -3.63     .79|
|    7    -2.99     .81|
|    8    -2.31     .86|
|    9    -1.46    1.00|
|   10     -.23    1.18|
|   11     1.01    1.01|
|   12     1.90     .89|
|   13     2.67     .88|
|   14     3.52     .97|
|   15     4.57    1.06|
|   16     5.62     .97|
|   17     6.48     .89|
|   18     7.28     .92|
|   19     8.28    1.13|
|   20     9.65E   1.89|
+------------------------+
```

Prompt 2

```
+------------------------+
| SCORE   MEASURE   S.E.|
+------------------------+
|    0    -8.04E   1.88|
|    1    -6.69    1.10|
|    2    -5.76     .87|
|    3    -5.06     .81|
|    4    -4.41     .80|
|    5    -3.76     .81|
|    6    -3.10     .81|
|    7    -2.44     .81|
|    8    -1.75     .86|
|    9     -.92     .98|
|   10      .23    1.13|
|   11     1.40    1.00|
|   12     2.27     .89|
|   13     3.04     .88|
|   14     3.89     .97|
|   15     4.93    1.06|
|   16     5.98     .97|
|   17     6.83     .89|
|   18     7.63     .91|
|   19     8.62    1.12|
|   20     9.99E   1.89|
+------------------------+
```

Table 12
Grade 9 Raw Score/Logit Conversion Tables by Prompt

Prompt 1

```
+------------------------
| SCORE   MEASURE   S.E.|
------------------------+
|    0    -7.85E    1.85|
|    1    -6.57     1.05|
|    2    -5.77      .79|
|    3    -5.23      .68|
|    4    -4.80      .64|
|    5    -4.40      .63|
|    6    -4.00      .64|
|    7    -3.57      .69|
|    8    -3.04      .78|
|    9    -2.29      .98|
|   10     -.95     1.30|
|   11      .47     1.04|
|   12     1.39      .90|
|   13     2.19      .91|
|   14     3.14     1.08|
|   15     4.91     1.57|
|   16     6.69     1.08|
|   17     7.65      .91|
|   18     8.46      .92|
|   19     9.45     1.12|
|   20    10.82E    1.89|
+------------------------
```

Prompt 2

```
+------------------------+
| SCORE   MEASURE   S.E.|
------------------------+
|    0    -7.15E    1.86|
|    1    -5.85     1.07|
|    2    -5.01      .81|
|    3    -4.44      .71|
|    4    -3.96      .67|
|    5    -3.52      .66|
|    6    -3.07      .68|
|    7    -2.59      .72|
|    8    -2.02      .80|
|    9    -1.25      .97|
|   10     -.06     1.17|
|   11     1.17     1.01|
|   12     2.05      .89|
|   13     2.84      .90|
|   14     3.76     1.06|
|   15     5.28     1.38|
|   16     6.81     1.06|
|   17     7.75      .91|
|   18     8.57      .92|
|   19     9.58     1.13|
|   20    10.96E    1.89|
+------------------------+
```

The five domain raw score to logit conversion tables are listed in Table 13 for grade 6 and in Table 14 for grade 9.

Table 13
Grade 6 Raw Score/Logit Conversion Tables by Domain

Domain 1

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|    0     -7.07E    1.94|
|    1     -5.54    1.24|
|    2     -4.22    1.11|
|    3     -2.90    1.23|
|    4      -.48    1.95|
|    5      2.12    1.38|
|    6      4.54    1.81|
|    7      6.98    1.40|
|    8      8.71E   1.98|
+-----------------------+
```

Domain 2

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|    0     -7.15E    1.96|
|    1     -5.52    1.31|
|    2     -3.92    1.26|
|    3     -2.29    1.32|
|    4       .33    2.01|
|    5      2.99    1.38|
|    6      5.12    1.57|
|    7      7.25    1.38|
|    8      8.96E   1.98|
+-----------------------+
```

Domain 3

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|    0     -7.20E    1.97|
|    1     -5.52    1.34|
|    2     -3.76    1.35|
|    3     -2.00    1.33|
|    4       .43    1.85|
|    5      2.90    1.38|
|    6      5.29    1.79|
|    7      7.70    1.40|
|    8      9.42E   1.98|
+-----------------------+
```

Domain 4

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|    0     -7.23E    1.97|
|    1     -5.55    1.34|
|    2     -3.80    1.34|
|    3     -2.06    1.32|
|    4       .28    1.79|
|    5      2.66    1.36|
|    6      4.90    1.67|
|    7      7.17    1.39|
|    8      8.89E   1.98|
+-----------------------+
```

Domain 5

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|    0     -7.29E    1.97|
|    1     -5.62    1.33|
|    2     -3.93    1.30|
|    3     -2.28    1.29|
|    4      -.15    1.64|
|    5      2.05    1.36|
|    6      4.25    1.64|
|    7      6.47    1.39|
|    8      8.19E   1.98|
+-----------------------+
```

Table 14
Grade 9 Raw Score/Logit Conversion Tables by Domain

Domain 1

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|   0     -6.35E    1.84|
|   1     -5.05     1.10|
|   2     -4.05      .95|
|   3     -3.06     1.10|
|   4      -.68     2.19|
|   5      2.20     1.40|
|   6      5.14     2.29|
|   7      8.10     1.41|
|   8      9.83E    1.98|
+-----------------------+
```

Domain 2

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|   0     -6.49E    1.91|
|   1     -5.05     1.17|
|   2     -3.89     1.04|
|   3     -2.72     1.19|
|   4      -.32     2.00|
|   5      2.42     1.43|
|   6      5.32     2.16|
|   7      8.14     1.40|
|   8      9.87E    1.98|
+-----------------------+
```

Domain 3

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|   0     -6.51E    1.91|
|   1     -5.04     1.19|
|   2     -3.84     1.06|
|   3     -2.59     1.22|
|   4      -.37     1.78|
|   5      2.17     1.46|
|   6      5.51     2.55|
|   7      8.72     1.42|
|   8     10.48E    1.99|
+-----------------------+
```

Domain 4

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|   0     -6.54E    1.92|
|   1     -5.07     1.19|
|   2     -3.86     1.06|
|   3     -2.62     1.21|
|   4      -.38     1.81|
|   5      2.09     1.41|
|   6      5.12     2.34|
|   7      8.13     1.41|
|   8      9.87E    1.98|
+-----------------------+
```

Domain 5

```
+-----------------------+
| SCORE   MEASURE   S.E.|
|-----------------------|
|   0     -6.61E    1.95|
|   1     -5.06     1.24|
|   2     -3.72     1.13|
|   3     -2.34     1.26|
|   4      -.13     1.72|
|   5      2.22     1.40|
|   6      5.11     2.19|
|   7      7.97     1.41|
|   8      9.71E    1.98|
+-----------------------+
```

Finally, the 15 field-test matrix prompts were mapped onto the 2001 metric again through the common item (domain) equating. Both the step and item anchor files used in the calculation of the previous raw score/logit conversion tables were used to anchor the calculation of the field-test matrix prompts. The same WINSTEPS control file was used for each calibration, except that the "person select" control statement was used to select each of the 15 forms separately. The raw score/logit conversion tables for these 15 calibrations are contained in Tables 15 and 16 for grade 6 and 9, respectively.

Table 15
Grade 6 Matrix Prompt Raw Score to Logit Conversion Tables

Form 1

SCORE	MEASURE	S.E.
0	-6.53E	1.84
1	-5.29	1.02
2	-4.54	.75
3	-4.05	.65
4	-3.66	.61
5	-3.31	.59
6	-2.95	.60
7	-2.57	.64
8	-2.10	.73
9	-1.47	.89
10	-.48	1.08
11	.62	.98
12	1.48	.88
13	2.24	.88
14	3.06	.95
15	4.07	1.03
16	5.08	.95
17	5.91	.88
18	6.70	.91
19	7.68	1.12
20	9.06E	1.89

Form 2

SCORE	MEASURE	S.E.
0	-6.46E	1.84
1	-5.22	1.03
2	-4.45	.76
3	-3.96	.66
4	-3.56	.61
5	-3.20	.60
6	-2.84	.61
7	-2.44	.65
8	-1.97	.73
9	-1.33	.89
10	-.33	1.08
11	.76	.98
12	1.61	.88
13	2.38	.88
14	3.23	.98
15	4.34	1.11
16	5.47	.99
17	6.34	.90
18	7.14	.92
19	8.14	1.12
20	9.51E	1.89

Form 3

```
+------------------------+
| SCORE   MEASURE   S.E.|
|------------------------|
|    0     -5.83E   1.81|
|    1     -4.65     .99|
|    2     -3.95     .73|
|    3     -3.50     .62|
|    4     -3.14     .58|
|    5     -2.82     .56|
|    6     -2.50     .57|
|    7     -2.15     .61|
|    8     -1.74     .69|
|    9     -1.16     .84|
|   10      -.26    1.03|
|   11       .78     .97|
|   12      1.62     .88|
|   13      2.38     .88|
|   14      3.22     .97|
|   15      4.30    1.08|
|   16      5.38     .98|
|   17      6.24     .89|
|   18      7.03     .91|
|   19      8.01    1.12|
|   20      9.38E   1.89|
+------------------------+
```

Form 4

```
+------------------------+
| SCORE   MEASURE   S.E.|
|------------------------|
|    0     -7.76E   1.87|
|    1     -6.45    1.08|
|    2     -5.58     .83|
|    3     -4.98     .74|
|    4     -4.47     .70|
|    5     -4.00     .69|
|    6     -3.52     .70|
|    7     -3.01     .73|
|    8     -2.42     .81|
|    9     -1.65     .96|
|   10      -.52    1.14|
|   11       .65    1.00|
|   12      1.52     .89|
|   13      2.30     .88|
|   14      3.15     .98|
|   15      4.23    1.09|
|   16      5.33     .98|
|   17      6.19     .90|
|   18      6.99     .92|
|   19      7.99    1.13|
|   20      9.37E   1.89|
+------------------------+
```

Form 5

```
+------------------------+
| SCORE   MEASURE   S.E.|
|------------------------|
|    0     -6.59E   1.84|
|    1     -5.34    1.04|
|    2     -4.57     .77|
|    3     -4.06     .66|
|    4     -3.66     .62|
|    5     -3.29     .60|
|    6     -2.91     .62|
|    7     -2.51     .66|
|    8     -2.03     .74|
|    9     -1.36     .91|
|   10      -.31    1.11|
|   11       .83     .99|
|   12      1.69     .88|
|   13      2.46     .88|
|   14      3.30     .98|
|   15      4.41    1.10|
|   16      5.52     .98|
|   17      6.39     .89|
|   18      7.19     .91|
|   19      8.18    1.12|
|   20      9.56E   1.89|
+------------------------+
```

Form 6

```
+------------------------+
| SCORE   MEASURE   S.E.|
|------------------------|
|    0     -7.92E   1.86|
|    1     -6.62    1.07|
|    2     -5.76     .82|
|    3     -5.18     .72|
|    4     -4.69     .68|
|    5     -4.24     .67|
|    6     -3.79     .68|
|    7     -3.30     .72|
|    8     -2.74     .79|
|    9     -2.02     .92|
|   10     -1.01    1.05|
|   11       .03     .96|
|   12       .84     .86|
|   13      1.57     .85|
|   14      2.33     .91|
|   15      3.22     .97|
|   16      4.12     .91|
|   17      4.90     .86|
|   18      5.66     .90|
|   19      6.62    1.11|
|   20      7.99E   1.88|
+------------------------+
```

Form 7

SCORE	MEASURE	S.E.
0	-6.54E	1.83
1	-5.32	1.01
2	-4.59	.74
3	-4.12	.64
4	-3.75	.59
5	-3.41	.58
6	-3.07	.59
7	-2.70	.63
8	-2.26	.71
9	-1.65	.87
10	-.70	1.06
11	.37	.97
12	1.21	.87
13	1.96	.87
14	2.79	.96
15	3.85	1.07
16	4.92	.97
17	5.76	.88
18	6.55	.91
19	7.52	1.12
20	8.89E	1.88

Form 9

SCORE	MEASURE	S.E.
0	-5.55E	1.79
1	-4.41	.97
2	-3.75	.70
3	-3.34	.60
4	-3.01	.56
5	-2.71	.54
6	-2.42	.55
7	-2.10	.58
8	-1.74	.64
9	-1.26	.75
10	-.59	.88
11	.21	.89
12	.95	.84
13	1.65	.84
14	2.41	.90
15	3.29	.96
16	4.17	.91
17	4.95	.86
18	5.71	.90
19	6.67	1.11
20	8.03E	1.88

Form 8

SCORE	MEASURE	S.E.
0	-7.25E	1.85
1	-5.98	1.04
2	-5.20	.78
3	-4.68	.67
4	-4.26	.63
5	-3.88	.61
6	-3.50	.62
7	-3.09	.66
8	-2.61	.74
9	-1.96	.87
10	-1.05	1.01
11	-.07	.95
12	.74	.87
13	1.48	.86
14	2.27	.93
15	3.22	1.00
16	4.17	.93
17	4.97	.87
18	5.74	.90
19	6.70	1.11
20	8.07E	1.88

Form 10

SCORE	MEASURE	S.E.
0	-7.53E	1.86
1	-6.25	1.06
2	-5.42	.80
3	-4.87	.70
4	-4.42	.65
5	-4.00	.64
6	-3.58	.65
7	-3.13	.69
8	-2.60	.77
9	-1.92	.90
10	-.96	1.03
11	.05	.95
12	.86	.87
13	1.60	.86
14	2.39	.94
15	3.36	1.01
16	4.33	.94
17	5.14	.87
18	5.91	.90
19	6.88	1.12
20	8.24E	1.88

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Form 11

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -7.54E    1.86 |
|    1    -6.25     1.06 |
|    2    -5.43      .80 |
|    3    -4.88      .70 |
|    4    -4.43      .65 |
|    5    -4.01      .64 |
|    6    -3.60      .66 |
|    7    -3.14      .70 |
|    8    -2.60      .78 |
|    9    -1.86      .95 |
|   10     -.71     1.16 |
|   11      .51     1.01 |
|   12     1.40      .89 |
|   13     2.18      .89 |
|   14     3.03      .98 |
|   15     4.13     1.09 |
|   16     5.24      .98 |
|   17     6.10      .89 |
|   18     6.89      .91 |
|   19     7.88     1.12 |
|   20     9.25E    1.89 |
+------------------------+
```

Form 13

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -7.39E    1.86 |
|    1    -6.10     1.06 |
|    2    -5.26      .80 |
|    3    -4.71      .70 |
|    4    -4.25      .66 |
|    5    -3.82      .65 |
|    6    -3.39      .66 |
|    7    -2.93      .70 |
|    8    -2.38      .79 |
|    9    -1.65      .95 |
|   10     -.53     1.14 |
|   11      .65     1.01 |
|   12     1.54      .90 |
|   13     2.33      .89 |
|   14     3.21     1.00 |
|   15     4.39     1.14 |
|   16     5.57     1.01 |
|   17     6.46      .90 |
|   18     7.28      .92 |
|   19     8.28     1.13 |
|   20     9.66E    1.89 |
+------------------------+
```

Form 12

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -6.91E    1.84 |
|    1    -5.65     1.04 |
|    2    -4.87      .77 |
|    3    -4.37      .67 |
|    4    -3.95      .62 |
|    5    -3.58      .61 |
|    6    -3.20      .62 |
|    7    -2.79      .66 |
|    8    -2.30      .75 |
|    9    -1.61      .92 |
|   10     -.52     1.14 |
|   11      .68     1.01 |
|   12     1.57      .90 |
|   13     2.36      .89 |
|   14     3.23     1.00 |
|   15     4.40     1.14 |
|   16     5.58     1.00 |
|   17     6.46      .90 |
|   18     7.27      .92 |
|   19     8.27     1.13 |
|   20     9.65E    1.89 |
+------------------------+
```

Form 14

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -6.44E    1.84 |
|    1    -5.20     1.03 |
|    2    -4.44      .76 |
|    3    -3.94      .66 |
|    4    -3.55      .61 |
|    5    -3.19      .60 |
|    6    -2.83      .61 |
|    7    -2.44      .65 |
|    8    -1.97      .73 |
|    9    -1.33      .89 |
|   10     -.33     1.08 |
|   11      .77      .98 |
|   12     1.63      .89 |
|   13     2.40      .89 |
|   14     3.26      .99 |
|   15     4.39     1.11 |
|   16     5.53      .99 |
|   17     6.40      .90 |
|   18     7.21      .92 |
|   19     8.20     1.12 |
|   20     9.57E    1.89 |
+------------------------+
```

Form 15

```
+-----------------------+
| SCORE   MEASURE   S.E.|
+-----------------------+
|    0    -7.35E    1.86|
|    1    -6.05     1.07|
|    2    -5.21      .81|
|    3    -4.63      .72|
|    4    -4.15      .67|
|    5    -3.71      .66|
|    6    -3.27      .67|
|    7    -2.79      .71|
|    8    -2.24      .78|
|    9    -1.52      .93|
|   10     -.47     1.09|
|   11      .64      .98|
|   12     1.49      .88|
|   13     2.26      .88|
|   14     3.11      .98|
|   15     4.24     1.11|
|   16     5.37      .99|
|   17     6.25      .90|
|   18     7.06      .92|
|   19     8.05     1.13|
|   20     9.43E    1.89|
+-----------------------+
```

Table 16
Grade 9 Matrix Prompt Raw Score to Logit Conversion Tables

Form 1

SCORE	MEASURE	S.E.
0	-7.22E	1.85
1	-5.96	1.04
2	-5.17	.77
3	-4.66	.67
4	-4.24	.63
5	-3.86	.61
6	-3.47	.63
7	-3.06	.67
8	-2.55	.76
9	-1.84	.95
10	-.61	1.23
11	.71	1.03
12	1.61	.90
13	2.40	.90
14	3.33	1.06
15	4.95	1.45
16	6.59	1.07
17	7.54	.91
18	8.36	.92
19	9.36	1.13
20	10.74E	1.89

Form 3

SCORE	MEASURE	S.E.
0	-7.82E	1.86
1	-6.54	1.06
2	-5.73	.79
3	-5.18	.69
4	-4.74	.65
5	-4.33	.64
6	-3.92	.65
7	-3.48	.69
8	-2.94	.78
9	-2.19	.97
10	-.91	1.26
11	.46	1.04
12	1.37	.90
13	2.17	.91
14	3.13	1.08
15	4.94	1.59
16	6.76	1.09
17	7.73	.92
18	8.56	.93
19	9.57	1.13
20	10.95E	1.89

Form 2

SCORE	MEASURE	S.E.
0	-7.79E	1.85
1	-6.52	1.05
2	-5.73	.78
3	-5.21	.68
4	-4.79	.63
5	-4.40	.62
6	-4.01	.63
7	-3.59	.68
8	-3.07	.77
9	-2.35	.95
10	-1.17	1.19
11	.10	1.02
12	1.00	.90
13	1.80	.91
14	2.75	1.08
15	4.56	1.59
16	6.39	1.09
17	7.36	.92
18	8.20	.93
19	9.21	1.13
20	10.59E	1.89

Form 4

SCORE	MEASURE	S.E.
0	-8.75E	1.86
1	-7.45	1.07
2	-6.60	.81
3	-6.03	.71
4	-5.56	.67
5	-5.11	.66
6	-4.67	.68
7	-4.18	.72
8	-3.60	.81
9	-2.81	.98
10	-1.60	1.19
11	-.33	1.03
12	.60	.91
13	1.42	.92
14	2.40	1.10
15	4.29	1.65
16	6.18	1.10
17	7.17	.93
18	8.01	.93
19	9.03	1.14
20	10.43E	1.89

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Form 5

SCORE	MEASURE	S.E.
0	-8.30E	1.86
1	-7.00	1.06
2	-6.17	.80
3	-5.61	.70
4	-5.15	.66
5	-4.72	.65
6	-4.28	.67
7	-3.81	.71
8	-3.24	.80
9	-2.46	.98
10	-1.19	1.24
11	.16	1.04
12	1.10	.92
13	1.92	.92
14	2.89	1.09
15	4.77	1.64
16	6.64	1.10
17	7.62	.92
18	8.45	.93
19	9.46	1.13
20	10.85E	1.89

Form 7

SCORE	MEASURE	S.E.
0	-8.19E	1.86
1	-6.90	1.06
2	-6.08	.79
3	-5.54	.69
4	-5.09	.65
5	-4.68	.64
6	-4.27	.65
7	-3.81	.70
8	-3.27	.78
9	-2.53	.95
10	-1.43	1.13
11	-.26	1.00
12	.62	.90
13	1.42	.91
14	2.37	1.08
15	4.04	1.48
16	5.70	1.08
17	6.66	.91
18	7.48	.92
19	8.47	1.13
20	9.85E	1.89

Form 6

SCORE	MEASURE	S.E.
0	-7.62E	1.84
1	-6.37	1.03
2	-5.60	.77
3	-5.10	.66
4	-4.69	.62
5	-4.33	.60
6	-3.95	.62
7	-3.55	.66
8	-3.06	.75
9	-2.37	.93
10	-1.24	1.16
11	-.01	1.01
12	.88	.90
13	1.68	.91
14	2.64	1.09
15	4.43	1.57
16	6.22	1.08
17	7.17	.91
18	7.98	.91
19	8.97	1.12
20	10.34E	1.88

Form 8

SCORE	MEASURE	S.E.
0	-7.77E	1.84
1	-6.51	1.04
2	-5.74	.77
3	-5.23	.67
4	-4.82	.62
5	-4.44	.61
6	-4.07	.62
7	-3.66	.66
8	-3.16	.75
9	-2.46	.94
10	-1.31	1.18
11	-.07	1.01
12	.82	.89
13	1.61	.90
14	2.55	1.08
15	4.27	1.53
16	6.00	1.08
17	6.96	.91
18	7.77	.92
19	8.76	1.12
20	10.13E	1.89

2002 PSSA Grade 6 and 9 Writing

Form 9

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -7.61E    1.84 |
|    1    -6.37     1.03 |
|    2    -5.61      .76 |
|    3    -5.11      .66 |
|    4    -4.71      .61 |
|    5    -4.35      .60 |
|    6    -3.98      .61 |
|    7    -3.58      .66 |
|    8    -3.09      .75 |
|    9    -2.40      .93 |
|   10    -1.24     1.18 |
|   11      .01     1.02 |
|   12      .90      .89 |
|   13     1.69      .90 |
|   14     2.62     1.06 |
|   15     4.21     1.43 |
|   16     5.80     1.07 |
|   17     6.75      .91 |
|   18     7.56      .92 |
|   19     8.55     1.12 |
|   20     9.92E    1.89 |
+------------------------+
```

Form 11

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -7.77E    1.85 |
|    1    -6.50     1.05 |
|    2    -5.70      .78 |
|    3    -5.17      .68 |
|    4    -4.74      .64 |
|    5    -4.34      .62 |
|    6    -3.95      .64 |
|    7    -3.51      .68 |
|    8    -2.99      .78 |
|    9    -2.23      .98 |
|   10     -.90     1.30 |
|   11      .52     1.05 |
|   12     1.45      .90 |
|   13     2.25      .91 |
|   14     3.20     1.08 |
|   15     4.99     1.57 |
|   16     6.78     1.08 |
|   17     7.74      .91 |
|   18     8.56      .92 |
|   19     9.55     1.13 |
|   20    10.93E    1.89 |
+------------------------+
```

Form 10

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -7.04E    1.81 |
|    1    -5.86      .99 |
|    2    -5.16      .72 |
|    3    -4.72      .62 |
|    4    -4.37      .57 |
|    5    -4.05      .56 |
|    6    -3.73      .57 |
|    7    -3.38      .61 |
|    8    -2.96      .70 |
|    9    -2.37      .86 |
|   10    -1.40     1.08 |
|   11     -.28      .99 |
|   12      .58      .89 |
|   13     1.37      .90 |
|   14     2.32     1.08 |
|   15     4.03     1.51 |
|   16     5.75     1.08 |
|   17     6.70      .91 |
|   18     7.52      .92 |
|   19     8.51     1.12 |
|   20     9.88E    1.89 |
+------------------------+
```

Form 12

```
+------------------------+
| SCORE   MEASURE   S.E. |
|------------------------|
|    0    -7.79E    1.84 |
|    1    -6.54     1.03 |
|    2    -5.78      .76 |
|    3    -5.28      .66 |
|    4    -4.88      .61 |
|    5    -4.52      .60 |
|    6    -4.15      .61 |
|    7    -3.75      .66 |
|    8    -3.26      .75 |
|    9    -2.55      .95 |
|   10    -1.31     1.24 |
|   11      .03     1.03 |
|   12      .94      .90 |
|   13     1.73      .91 |
|   14     2.68     1.08 |
|   15     4.45     1.56 |
|   16     6.23     1.09 |
|   17     7.20      .92 |
|   18     8.02      .92 |
|   19     9.03     1.13 |
|   20    10.41E    1.89 |
+------------------------+
```

2002 PSSA Grade 6 and 9 Writing

Form 13

```
+------------------------+
| SCORE   MEASURE   S.E. |
+------------------------+
|    0    -8.38E    1.86 |
|    1    -7.08     1.07 |
|    2    -6.24      .81 |
|    3    -5.68      .71 |
|    4    -5.21      .67 |
|    5    -4.77      .66 |
|    6    -4.33      .67 |
|    7    -3.85      .72 |
|    8    -3.27      .81 |
|    9    -2.46     1.01 |
|   10    -1.01     1.36 |
|   11      .51     1.06 |
|   12     1.44      .91 |
|   13     2.25      .91 |
|   14     3.20     1.08 |
|   15     4.93     1.53 |
|   16     6.67     1.09 |
|   17     7.64      .92 |
|   18     8.47      .92 |
|   19     9.48     1.13 |
|   20    10.86E    1.89 |
+------------------------+
```

Form 15

```
+------------------------+
| SCORE   MEASURE   S.E. |
+------------------------+
|    0    -8.07E    1.84 |
|    1    -6.83     1.03 |
|    2    -6.07      .76 |
|    3    -5.58      .66 |
|    4    -5.18      .61 |
|    5    -4.82      .60 |
|    6    -4.45      .61 |
|    7    -4.05      .66 |
|    8    -3.56      .76 |
|    9    -2.83      .97 |
|   10    -1.46     1.34 |
|   11      .03     1.05 |
|   12      .96      .91 |
|   13     1.76      .91 |
|   14     2.73     1.09 |
|   15     4.68     1.71 |
|   16     6.64     1.10 |
|   17     7.62      .92 |
|   18     8.46      .93 |
|   19     9.47     1.13 |
|   20    10.86E    1.89 |
+------------------------+
```

Form 14

```
+------------------------+
| SCORE   MEASURE   S.E. |
+------------------------+
|    0    -8.47E    1.86 |
|    1    -7.17     1.07 |
|    2    -6.34      .81 |
|    3    -5.77      .71 |
|    4    -5.30      .67 |
|    5    -4.86      .66 |
|    6    -4.42      .67 |
|    7    -3.94      .72 |
|    8    -3.37      .81 |
|    9    -2.58      .99 |
|   10    -1.27     1.26 |
|   11      .10     1.04 |
|   12     1.02      .91 |
|   13     1.83      .91 |
|   14     2.79     1.09 |
|   15     4.64     1.62 |
|   16     6.49     1.09 |
|   17     7.47      .92 |
|   18     8.30      .92 |
|   19     9.30     1.13 |
|   20    10.68E    1.89 |
+------------------------+
```

Student-level Reporting
Raw score reporting were in the original metric: (1, 2, 3, 4) for domains and (5, 6,…, 40) for prompts.

The reported standard errors are in the "points received" metric and were computed by extending standard results for dichotomously scored items. The squared standard error for a prompt will be $SE^2 = (4 - 1) * P * (1 - P)$ where P is the mean score for that prompt minus one multiplied by $(4 - 1)$. This formula is nothing more than the familiar *npq*, assuming a prompt score is three trials of a binomial process coded 1 to 4 rather than 0 to 3. The *minus ones* come about because one is the lowest score possible for a scorable prompt. Most of the standard errors for prompts will be between 0.75 and 0.87, so the standard error for total scores will be 1.5 to 2.

If a prompt is unscorable for a student and no reason was given, the student's scores will include zeros for that prompt. If a valid reason is given for not being tested, the student will be reported as though only one prompt was given.

Table 17 shows some basic statistics for the norming groups. Student-level distributions will not, in general, have the same mean as the school level, and the standard deviations will be much larger.

Table 17
Grade 6 and 9 Student-level Statistics for Norming Group

Grade	Count	Mean	Median	S.D.
6	140,152	1290.4	1285.0	188.1
9	141,863	1333.6	1334.0	238.4

Table 18 provides more detail about the student-level distributions. This table gives the raw to scale score conversions, as well as the percent and cumulative percent of students from the norming group at each score point. Both distributions are quite peaked at a raw score of 30. Grade 9 in particular shows local peaks at the five multiples, which would typically occur when a paper receives the same score in every domain. Both distributions are negatively skewed. These observations are completely consistent with the distribution of domain level scores.

Table 18
Grade 6 and 9 Raw Score to Scale Score Conversion And Percentile Rank

Raw Score	Grade 6			Grade 9			Raw Score
	Scale Score	Percent	Cumulative Percent	Scale Score	Percent	Cumulative Percent	
0	700	0.4	0.4	700	1.3	1.3	0
5	770	0.3	0.7	772	0.7	2.1	5
6	791	0.1	0.8	791	0.1	2.2	6
7	812	0.1	0.8	809	0.1	2.3	7
8	831	0.1	0.9	826	0.2	2.6	8
9	852	0.0	0.9	841	0.2	2.7	9
10	872	1.2	2.2	857	1.2	4	10
11	893	0.7	2.9	873	0.4	4.4	11
12	913	0.7	3.6	889	0.3	4.8	12
13	933	0.7	4.3	906	0.6	5.4	13
14	954	0.7	5.0	924	0.6	6	14
15	976	1.7	6.8	944	1.4	7.5	15
16	999	1.5	8.3	967	1	8.5	16
17	1024	1.8	10.1	993	1	9.6	17
18	1053	1.9	12.1	1025	2	11.7	18
19	1088	2.2	14.3	1065	1.9	13.7	19
20	1128	7.6	22.1	1115	6.6	20.6	20
21	1169	5.1	27.3	1165	3.5	24.4	21
22	1204	5.3	32.7	1208	4.1	28.7	22
23	1234	5.4	38.3	1243	4.7	33.7	23
24	1260	5.4	43.8	1274	5	39	24
25	1285	6.8	50.7	1304	7	46.4	25
26	1310	5.5	56.3	1334	5.2	51.8	26
27	1335	5.7	62.1	1365	6.1	58.3	27
28	1363	5.7	67.9	1403	7	65.7	28
29	1395	5.6	73.7	1453	7.7	73.8	29
30	1430	8.2	81.9	1523	10.8	85.3	30
31	1465	3.8	85.8	1594	3	88.4	31
32	1497	2.7	88.6	1643	2.6	91.2	32
33	1525	2.2	90.9	1681	1.9	93.2	33
34	1551	2.0	92.9	1712	1.7	95	34
35	1577	2.7	95.7	1742	2.2	97.3	35
36	1602	1.1	96.8	1772	0.7	98.1	36
37	1631	0.8	97.6	1805	0.6	98.7	37
38	1666	0.7	98.3	1845	0.4	99.1	38
39	1718	0.6	99.0	1905	0.4	99.5	39
40	1801	1.0	100.0	1999	0.5	100	40

Table 19 provides a summary of the performance standards in both raw score and scale score metrics. The scale score standards are fixed values and will not change unless the standard setting is revisited in the future. The raw score standards will change from year to year as the difficulty of the prompts vary. The table also shows the impacts of the standards in the form of the percent of the students who were classified in each group.

Table 19
Grade 6 and 9 Performance Standards

Grade 6	2002 Raw Score Cut Point	Scale Score	Percent in Category
Advanced	33	1521 and above	11.4
Proficient	25	1280 -- 1520	44.8
Basic	20	1116 -- 1279	29.5
Below Basic		1115 and below	14.3
Grade 9			
Advanced	31	1582 and above	14.7
Proficient	25	1284 -- 1581	46.3
Basic	21	1135 -- 1283	18.4
Below Basic		1134 and below	20.6

Indicators of Consistency

Criterion-referenced tests are often used to place the examinees into two or more performance classifications. It is then useful to have some indication of how consistent such classifications are. Livingston (1972) argued that a measure of consistency should be a function of the reliability of the test and the distance between the performance standard and the mean of the distribution. Livingston's coefficient, which was formulated from the perspective of True Score Theory, is defined by:

1. $\kappa^2(X,T) = [\ \sigma^2_T + (\mu_T - C)^2\ ] / [\ \sigma^2_X + (\mu_X - C)^2\ ]$

If the expressions in parenthesis $(\mu - C)$ are zero, equation 1 is the ratio of the true score variance to the observed score variance, which is a standard definition of reliability. The numerator is increased by adding the squared difference between the true score mean and the cut score. The denominator is increased by the difference between the observed score mean and the cut score.

The coefficient is normally computed, from data, by setting the true score mean equal to the observed score mean and multiplying the observed score variance by an estimate of the test reliability coefficient to obtain a value for the true score variance.

2. $\kappa^2(X,T) = [\ r\ \sigma^2_X + (\mu_X - C)^2\ ] / [\ \sigma^2_X + (\mu_X - C)^2\ ]$

If $(\mu_X - C)$ is zero, expression 2 will return the value of the reliability; if it is non-zero, the value will be larger than the reliability.

Livingston, S.A. 1972. Criterion Referenced Applications of Classical Test Theory. *Journal of Educational Measurement* 9: 13-26.

For the 2002 PSSA, values for the Livingston Coefficient of Consistency are given in Table 20 below for each performance standard. To illustrate the calculation, the following raw score data was used to calculate the Grade Six Basic Coefficient of Consistency.

$$\kappa^2(X,T) \quad = [\,(.94)(37.21) + (25 - 20)^2\,]\,/\,[37.21 + (25 - 20)^2\,] = 0.96.$$

Table 20
Livingston Coefficient of Consistency at Each Performance Standard

Grade	Basic	Proficient	Advanced
6	.96	.94	.98
9	.96	.94	.97

School-level Results

Each school is treated as one observation with no reference to the number of students.

Table 21
School-level Distributions

Grade 6		Enrollment		Scale Score	
Group	Schools	Mean	S.D.	Mean	S.D.
Norming	1064	134.0	101.8	1288.3	96.3
Non-Norm	176	28.0	27.1	1183.4	184.2
Home	36	1.1	.3	1241.9	103.3
Total	1240	118.7	101.8	1273.4	118.7
Grade 9					
Norming	619	240.9	176.4	1328.2	108.4
Non-Norm	130	47.2	54.4	1121.9	202.2
Home	47	1.4	0.7	1191.1	140.8
Total	749	206.5	177.8	1292.4	151.3

Table 21 above summarizes the school-level results by norming and non-norming groups. The non-norming schools tend to be smaller and lower achieving. There is considerable variation in their performance, as shown by the large standard deviations for the scale scores.

Similar Schools

To provide an additional frame of reference for evaluating a school's performance, each school is compared to a set of *Similar Schools*. The intent is to provide a comparison with other schools that have similar student populations and so have similar educational challenges. The two variables that have been shown to be important in these comparisons are community type and socioeconomic status. For the PSSA, community type is defined as rural, urban and suburban. SES is measured by the percent low income as reported to the State.

The similar school set is defined for each school as the 10 schools immediately above and the 10 schools immediately below the school in question when the schools have been sorted by percent low income within community type groupings. The school report includes a listing of the 20 schools in the set for that school.

Two statistics are reported and both are intervals. The **Similar School Range** is the difference between the highest and lowest scale scores in the group. The **Similar School Band** is the interquartile distance. In other words, it is the difference between the 5th highest scale score and the 15th highest scale score.

Table 22 summarizes the relationships between percent low income and school-level scale scores within normed community type groupings. There is a negative correlation between percent low income and school-level scale scores.

Table 22
School-level Scores by Community Type

Community Type	Scale Score		% Low Income		Count of Schools		Correlation	
	6	9	6	9	6	9	6	9
Suburban	1346.1	1404.6	16.4	11.0	266	153	-.59	-.55
Rural	1297.6	1328.0	31.0	23.2	508	332	-.31	-.26
Urban	1219.0	1246.0	64.3	48.5	290	122	-.47	-.62
Total	1288.3	1328.2	36.4	25.3	1064	619	-.61	-.61

Appendix A

Grade 6 Common Prompt Item and Threshold Difficulty

```
+-------------------------------------------------------------------------------+
|ENTRY    RAW                       |  INFIT  | OUTFIT |SCORE|        |         |
|NUMBER  SCORE  COUNT   MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G |
|---------------------------------+----------+----------+-----+--------+---------|
|     1 374043 142928    -.05A    .01| .93  -9.9| .90  -9.9| .81|    -.01| P2D1C 0 |
|     2 358661 142928     .24A    .01| .93  -9.9| .90  -9.9| .81|     .00| P2D2C 0 |
|     3 353797 142928     .43A    .01| .90  -9.9| .87  -9.9| .82|     .00| P2D3C 0 |
|     4 359662 142928     .26A    .01| .89  -9.9| .85  -9.9| .83|     .02| P2D4C 0 |
|     5 377258 142928    -.07A    .01|1.02   5.4|1.02   4.1| .81|    -.01| P2D5C 0 |
|     6 362161 142542     .32A    .01| .91  -9.9| .87  -9.9| .82|     .02| P3D1C 0 |
|     7 341016 142542     .73A    .01| .88  -9.9| .85  -9.9| .83|     .01| P3D2C 0 |
|     8 342737 142542     .80A    .01| .83  -9.9| .80  -9.9| .84|    -.01| P3D3C 0 |
|     9 349021 142542     .63A    .01| .83  -9.9| .80  -9.9| .84|     .01| P3D4C 0 |
|    10 364543 142542     .32A    .01| .96  -9.9| .95  -9.9| .82|    -.04| P3D5C 0 |
|---------------------------------+----------+----------+-----+--------+---------|
| MEAN 358290.142735.     .36     .01| .91  -8.4| .88  -8.5|     |        |         |
| S.D.  11447.    188.    .28     .00| .05   4.6| .06   4.2|     |        |         |
+-------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P2D1C

Domain ITEM DIFFICULTY MEASURE OF -.05 ADDED TO MEASURES

```
+--------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------++---------+--------+
|  0    0    716    1| -4.32 -5.31| 1.01  1.06||  NONE A |( -6.66)| 0 Unscorable
|  1    1   5586    4| -2.88 -2.74|  .94   .91||  -5.42A |  -4.48 | 1 Minimal
|  2    2  53861   38|   .58   .61|  .95   .94||  -3.43A |   -.75 | 2 Limited
|  3    3  70325   49|  3.67  3.64|  .98   .94||   2.01A |  4.38  | 3 Adequate
|  4    4  12440    9|  6.69  6.72|  .84   .80||   6.84A |( 7.89) | 4 Superior
|-----------------+------------+------------++---------+--------+
|MISSING    231    0|   .58      |            ||         |        |
+--------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------+----------+--------------------+---------+----------+---------|
|   0      NONE         |( -6.66) -INF  -5.74|         |  0%   0% | -18.7%  | 0 Unscorable
|   1     -5.47    .04  | -4.48  -5.74  -3.22|  -5.58  | 59%  52% |    .6%  | 1 Minimal
|   2     -3.48    .02  |  -.75  -3.22   1.95|  -3.37  | 76%  71% |   -.7%  | 2 Limited
|   3      1.96    .01  |  4.38   1.95   6.81|   1.96  | 74%  83% |   1.5%  | 3 Adequate
|   4      6.79    .01  |( 7.89)  6.81  +INF |   6.80  | 70%  48% |  -4.0%  | 4 Superior
+-----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P2D2C

Domain ITEM DIFFICULTY MEASURE OF .24 ADDED TO MEASURES

```
+--------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------++---------+--------+
|  0    0    716    1| -4.33 -5.34|  .95   .97||  NONE A |( -6.80)| 0 Unscorable
|  1    1   7840    5| -2.74 -2.50|  .85   .80||  -5.89A |  -4.29 | 1 Minimal
|  2    2  63719   45|  1.02  1.02|  .95   .94||  -3.17A |   -.14 | 2 Limited
|  3    3  59229   41|  3.96  3.93|  .99   .94||   2.41A |  4.77  | 3 Adequate
|  4    4  11424    8|  6.71  6.81|  .88   .86||   6.65A |( 8.00) | 4 Superior
|-----------------+------------+------------++---------+--------+
|MISSING    231    0|   .57      |            ||         |        |
+--------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
| CATEGORY    STRUCTURE     |  SCORE-TO-MEASURE  | 50% CUM. | COHERENCE| OBS-EXP  |
|  LABEL   MEASURE  S.E.    | AT CAT. ----ZONE----| PROBABLTY| M->C C->M|RESIDUAL |
|---------------------------+--------------------+----------+----------+---------|
|    0      NONE            | ( -6.80) -INF  -5.81|          |  0%   0% | -19.8%  | 0 Unscorable
|    1     -5.65    .04     |  -4.29  -5.81  -2.79|  -5.71   | 67%  51% |    .1%  | 1 Minimal
|    2     -2.93    .01     |   -.14  -2.79   2.62|  -2.87   | 75%  79% |   -.1%  | 2 Limited
|    3      2.65    .01     |   4.77   2.62   6.93|   2.64   | 71%  73% |   1.3%  | 3 Adequate
|    4      6.89    .01     | ( 8.00)  6.93  +INF |   6.90   | 67%  50% |  -4.0%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3 P2D3C

Domain ITEM DIFFICULTY MEASURE OF .43 ADDED TO MEASURES

```
+----------------------------------------------------------------------------+
| CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|  LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+------------++---------+--------+
|   0    0    716   1| -4.33 -5.27|  .92   .92 ||  NONE A | ( -6.91)| 0 Unscorable
|   1    1   9952   7| -2.54 -2.33|  .85   .80 || -6.21A  |  -4.14  | 1 Minimal
|   2    2  61411  43|  1.08  1.09|  .92   .90 || -2.92A  |    .06  | 2 Limited
|   3    3  62373  44|  4.08  4.03|  .96   .91 ||  2.17A  |   5.00  | 3 Adequate
|   4    4   8476   6|  6.95  7.01|  .85   .81 ||  6.96A  | ( 8.50) | 4 Superior
|---------------------+------------+------------++---------+--------+
|MISSING      231   0|   .56      |            ||         |        |
+----------------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
| CATEGORY    STRUCTURE     |  SCORE-TO-MEASURE  | 50% CUM. | COHERENCE| OBS-EXP  |
|  LABEL   MEASURE  S.E.    | AT CAT. ----ZONE----| PROBABLTY| M->C C->M|RESIDUAL |
|---------------------------+--------------------+----------+----------+---------|
|    0      NONE            | ( -6.91) -INF  -5.88|          |  0%   0% | -19.3%  | 0 Unscorable
|    1     -5.78    .04     |  -4.14  -5.88  -2.41|  -5.82   | 73%  52% |    .0%  | 1 Minimal
|    2     -2.49    .01     |    .06  -2.41   2.59|  -2.46   | 74%  80% |    .3%  | 2 Limited
|    3      2.60    .01     |   5.00   2.59   7.41|   2.60   | 74%  77% |    .6%  | 3 Adequate
|    4      7.39    .01     | ( 8.50)  7.41  +INF |   7.40   | 60%  33% |  -4.4%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4 P2D4C

Domain ITEM DIFFICULTY MEASURE OF .26 ADDED TO MEASURES

```
+----------------------------------------------------------------------------+
| CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|  LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+------------++---------+--------+
|   0    0    716   1| -4.33 -5.25|  .92   .92 ||  NONE A | ( -6.90)| 0 Unscorable
|   1    1   9849   7| -2.63 -2.35|  .78   .73 || -6.03A  |  -4.13  | 1 Minimal
|   2    2  58880  41|  1.01  1.01|  .90   .89 || -2.74A  |   -.02  | 2 Limited
|   3    3  61879  43|  3.95  3.87|  .93   .88 ||  2.18A  |   4.65  | 3 Adequate
|   4    4  11604   8|  6.65  6.87|  .89   .87 ||  6.59A  | ( 7.96) | 4 Superior
|---------------------+------------+------------++---------+--------+
|MISSING      231   0|   .57      |            ||         |        |
+----------------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -6.90) -INF  -5.87 |         |  0%   0% | -19.7%  | 0 Unscorable
|   1      -5.77   .04  | -4.13  -5.87  -2.40 |  -5.81  | 74%  53% |   -.8%  | 1 Minimal
|   2      -2.48   .01  |  -.02  -2.40   2.43 |  -2.45  | 77%  73% |  1.1%   | 2 Limited
|   3       2.44   .01  |  4.65   2.43   6.88 |   2.44  | 71%  81% |   .5%   | 3 Adequate
|   4       6.85   .01  |( 7.96)  6.88  +INF  |   6.86  | 66%  49% |  -5.5%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P2D5C

Domain ITEM DIFFICULTY MEASURE OF -.07 ADDED TO MEASURES

```
+----------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|   0    0    716   1| -4.32 -5.09|  .93   .93 || NONE  A |( -6.89)| 0 Unscorable
|   1    1   8966   6| -2.56 -2.50|  .91   .89 || -5.69A |  -4.17 | 1 Minimal
|   2    2  48622  34|   .73   .69| 1.02  1.03 || -2.50A |   -.38 | 2 Limited
|   3    3  67448  47|  3.53  3.51| 1.07  1.07 ||  1.88A |  4.02  | 3 Adequate
|   4    4  17176  12|  6.14  6.32| 1.06  1.04 ||  6.30A |( 7.34) | 4 Superior
|-------------------+------------+------------++---------+--------+
|MISSING    231   0|   .58      |            ||         |        |
+----------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -6.89) -INF  -5.87 |         |  0%   0% | -18.1%  | 0 Unscorable
|   1      -5.76   .04  | -4.17  -5.87  -2.50 |  -5.80  | 67%  53% |  -3.1%  | 1 Minimal
|   2      -2.57   .01  |  -.38  -2.50   1.81 |  -2.54  | 69%  69% |  1.2%   | 2 Limited
|   3       1.81   .01  |  4.02   1.81   6.26 |   1.81  | 70%  79% |   .3%   | 3 Adequate
|   4       6.23   .01  |( 7.34)  6.26  +INF  |   6.24  | 68%  46% |  -1.9%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 6   P3D1C

Domain ITEM DIFFICULTY MEASURE OF .32 ADDED TO MEASURES

```
+----------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|   0    0   1024   1| -4.32 -5.37|  .89   .89 || NONE  A |( -6.32)| 0 Unscorable
|   1    1   8043   6| -2.58 -2.33|  .90   .83 || -5.47A |  -4.01 | 1 Minimal
|   2    2  56382  39|   .85   .86|  .95   .93 || -3.18A |   -.31 | 2 Limited
|   3    3  67018  47|  3.86  3.81|  .95   .90 ||  1.91A |  4.65  | 3 Adequate
|   4    4  10075   7|  6.87  7.11|  .82   .78 ||  6.74A |( 8.16) | 4 Superior
|-------------------+------------+------------++---------+--------+
|MISSING    617   0|   .60      |            ||         |        |
+----------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -6.32) -INF   -5.37|         | 57%  27% | -21.9%  | 0 Unscorable
|   1      -5.15   .03  | -4.01  -5.37  -2.66 |  -5.24  | 60%  48% |   4.3%  | 1 Minimal
|   2      -2.86   .01  |  -.31  -2.66   2.22 |  -2.78  | 73%  73% |    .2%  | 2 Limited
|   3       2.23   .01  |  4.65   2.22   7.08 |   2.23  | 74%  82% |   1.1%  | 3 Adequate
|   4       7.06   .01  |( 8.16)  7.08  +INF  |   7.07  | 77%  36% |  -8.0%  | 4 Superior
+-------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 7 P3D2C

Domain ITEM DIFFICULTY MEASURE OF .73 ADDED TO MEASURES

```
+----------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|   0    0    1024  1| -4.33 -5.41|  .83   .82 ||  NONE A |( -6.47)| 0 Unscorable
|   1    1   11792  8| -2.32 -2.02|  .80   .73 || -6.07A  | -3.75  | 1 Minimal
|   2    2   68396 48|  1.39  1.39|  .91   .90 || -2.88A  |   .50  | 2 Limited
|   3    3   52888 37|  4.30  4.20|  .94   .89 ||  2.42A  |  5.21  | 3 Adequate
|   4    4    8442  6|  6.96  7.30|  .85   .84 ||  6.54A  |( 8.38)| 4 Superior
|-------------------+------------+------------++---------+--------+
|MISSING      617  0|  .59       |            ||         |        |
+----------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -6.47) -INF   -5.45|         | 57%  27% | -22.5%  | 0 Unscorable
|   1      -5.34   .03  | -3.75  -5.45  -2.06 |  -5.38  | 72%  55% |   2.0%  | 1 Minimal
|   2      -2.15   .01  |   .50  -2.06   3.12 |  -2.12  | 77%  81% |   -.1%  | 2 Limited
|   3       3.15   .01  |  5.21   3.12   7.32 |   3.14  | 71%  75% |   1.7%  | 3 Adequate
|   4       7.27   .01  |( 8.38)  7.32  +INF  |   7.29  | 69%  38% |  -8.6%  | 4 Superior
+-------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 8 P3D3C

Domain ITEM DIFFICULTY MEASURE OF .80 ADDED TO MEASURES

```
+----------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|   0    0    1024  1| -4.33 -5.40|  .82   .81 ||  NONE A |( -6.50)| 0 Unscorable
|   1    1   12592  9| -2.35 -2.01|  .71   .65 || -6.18A  | -3.67  | 1 Minimal
|   2    2   63275 44|  1.31  1.34|  .86   .85 || -2.76A  |   .47  | 2 Limited
|   3    3   59009 41|  4.28  4.16|  .90   .86 ||  2.09A  |  5.27  | 3 Adequate
|   4    4    6642  5|  7.14  7.51|  .82   .80 ||  6.85A  |( 8.76)| 4 Superior
|-------------------+------------+------------++---------+--------+
|MISSING      617  0|  .59       |            ||         |        |
+----------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL     MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+---------------------+---------+----------+---------+
|   0       NONE          |( -6.50) -INF  -5.47 |         | 57%  27% | -22.5%  | 0 Unscorable
|   1      -5.38    .03   | -3.67 -5.47  -1.90  |  -5.41  | 73%  65% |  -.4%   | 1 Minimal
|   2      -1.96    .01   |   .47 -1.90   2.89  |  -1.94  | 75%  82% |   .2%   | 2 Limited
|   3       2.89    .01   |  5.27  2.89   7.67  |   2.89  | 77%  75% |  1.7%   | 3 Adequate
|   4       7.65    .01   |( 8.76) 7.67  +INF   |   7.66  | 67%  31% | -10.1%  | 4 Superior
+------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 9   P3D4C

Domain ITEM DIFFICULTY MEASURE OF .63 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0    1024   1| -4.33 -5.38|  .83   .81 ||  NONE A |( -6.48)| 0 Unscorable
|   1    1   12151   8| -2.40 -2.06|  .69   .63 || -5.99A  | -3.69  | 1 Minimal
|   2    2   60185  42|  1.21  1.23|  .85   .84 || -2.64A  |   .34  | 2 Limited
|   3    3   60228  42|  4.14  4.01|  .90   .86 ||  2.05A  |  4.94  | 3 Adequate
|   4    4    8954   6|  6.87  7.27|  .87   .85 ||  6.57A  |( 8.31)| 4 Superior
|--------------------+------------+------------++---------+--------+
|MISSING      617   0|  .59       |            ||         |        |
+------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL     MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+---------------------+---------+----------+---------+
|   0       NONE          |( -6.48) -INF  -5.45 |         | 57%  27% | -22.8%  | 0 Unscorable
|   1      -5.36    .03   | -3.69 -5.45  -1.94  |  -5.39  | 73%  67% |  -.7%   | 1 Minimal
|   2      -2.01    .01   |   .34 -1.94   2.68  |  -1.99  | 76%  78% |   .7%   | 2 Limited
|   3       2.68    .01   |  4.94  2.68   7.23  |   2.68  | 74%  79% |  1.5%   | 3 Adequate
|   4       7.20    .01   |( 8.31) 7.23  +INF   |   7.21  | 69%  36% |  -9.3%  | 4 Superior
+------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 10   P3D5C

Domain ITEM DIFFICULTY MEASURE OF .32 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0    1024   1| -4.32 -5.27|  .84   .83 ||  NONE A |( -6.45)| 0 Unscorable
|   1    1   10643   7| -2.42 -2.24|  .79   .74 || -5.64A  | -3.76  | 1 Minimal
|   2    2   52069  36|   .97   .99|  .96   .96 || -2.52A  |   .01  | 2 Limited
|   3    3   65462  46|  3.76  3.63| 1.06  1.05 ||  1.90A  |  4.40  | 3 Adequate
|   4    4   13344   9|  6.35  6.81| 1.03  1.01 ||  6.26A  |( 7.69)| 4 Superior
|--------------------+------------+------------++---------+--------+
|MISSING      617   0|  .60       |            ||         |        |
+------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

2002 PSSA Grade 6 and 9 Writing

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|    0       NONE       |( -6.45) -INF  -5.43 |         | 57%  27% | -22.1%  | 0 Unscorable
|    1      -5.32   .03 | -3.76  -5.43  -2.12 |  -5.36  | 69%  59% |  -2.7%  | 1 Minimal
|    2      -2.20   .01 |   .01  -2.12   2.22 |  -2.17  | 70%  72% |  -1.5%  | 2 Limited
|    3       2.22   .01 |  4.40   2.22   6.62 |   2.22  | 72%  74% |   3.7%  | 3 Adequate
|    4       6.58   .01 |( 7.69)  6.62  +INF  |   6.59  | 58%  50% |  -6.8%  | 4 Superior
+-----------------------------------------------------------------------+
```

Grade 9 Common Prompt Item and Threshold Difficulty

```
+----------------------------------------------------------------------+
|ENTRY   RAW                      |   INFIT  |  OUTFIT |SCORE|         |        |
|NUMBER  SCORE    COUNT   MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|-----------------------------------+----------+---------+-----+--------+--------|
|     1 373245 145498      .28A    .01|1.20   9.9|1.21   9.9| .78|   -.01| P2D1C 0|
|     2 375485 145498      .26A    .01|1.00    .4| .94  -9.9| .82|    .00| P2D2C 0|
|     3 380799 145498      .24A    .01| .96  -9.4| .88  -9.9| .82|    .00| P2D3C 0|
|     4 379199 145498      .19A    .01| .94  -9.9| .86  -9.9| .83|    .00| P2D4C 0|
|     5 377292 145498      .23A    .01|1.02   5.5| .97  -5.8| .82|    .00| P2D5C 0|
|     6 367545 144644      .60A    .01|1.02   4.0| .96  -8.8| .82|    .00| P3D1C 0|
|     7 354018 144644      .86A    .01| .95  -9.9| .90  -9.9| .84|    .00| P3D2C 0|
|     8 351391 144644     1.07A    .01| .89  -9.9| .83  -9.9| .84|    .00| P3D3C 0|
|     9 359607 144644      .82A    .01| .88  -9.9| .82  -9.9| .85|    .00| P3D4C 0|
|    10 356212 144644      .88A    .01| .98  -4.6| .95  -9.9| .84|    .00| P3D5C 0|
|-----------------------------------+----------+---------+-----+--------+--------|
| MEAN 367479.145071.      .55    .01| .99  -3.4| .93  -7.4|    |        |        |
| S.D. 10664.    427.      .32    .00| .08   7.3| .10   5.9|    |        |        |
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P2D1C

Domain ITEM DIFFICULTY MEASURE OF .29 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|-------------------+------------+------------++---------+--------|
|   0    0   1544  1| -4.34 -4.47| 1.04   .94 ||  NONE A |( -6.22)| 0 Unscorable
|   1    1   4056  3| -3.35 -3.21|  .93   .83 || -5.13A  | -4.54  | 1 Minimal
|   2    2  58713 40|   .74   .47| 1.29  1.40 || -4.51A  | -1.04  | 2 Limited
|   3    3  72977 50|  3.83  4.05| 1.28  1.27 ||  1.81A  |  5.11  | 3 Adequate
|   4    4   8208  6|  7.57  7.51|  .99   .89 ||  7.83A  |( 9.22) | 4 Superior
|-------------------+------------+------------++---------+--------|
|MISSING      591  0|   .53      |            ||         |        |
+-----------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.
```

```
+--------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE |50% CUM.| COHERENCE|OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-------------------------+-------------------+---------+----------+--------|
|   0      NONE           |( -6.22) -INF  -5.47|         |  0%   0% | -1.9% | 0 Unscorable
|   1     -4.85     .03   | -4.54  -5.47  -3.61| -5.17   | 39%  48% | -1.1% | 1 Minimal
|   2     -4.23     .02   | -1.04  -3.61   2.09| -3.90   | 67%  72% |  -.3% | 2 Limited
|   3      2.10     .01   |  5.11   2.09   8.12|  2.09   | 72%  74% |   .3% | 3 Adequate
|   4      8.11     .01   |( 9.22)  8.12  +INF |  8.12   | 68%  26% |   .5% | 4 Superior
+--------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P2D2C

Domain ITEM DIFFICULTY MEASURE OF .26 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|-------------------+------------+------------++---------+--------|
|   0    0   1544  1| -4.33 -4.36| 1.00   .90 ||  NONE A |( -6.33)| 0 Unscorable
|   1    1   5425  4| -3.21 -3.08|  .93   .87 || -5.33A  | -4.43  | 1 Minimal
|   2    2  54032 37|   .48   .43|  .99   .98 || -4.05A  |  -.94  | 2 Limited
|   3    3  75992 52|  3.94  3.96| 1.04   .97 ||  1.61A  |  4.96  | 3 Adequate
|   4    4   8505  6|  7.56  7.54|  .98   .87 ||  7.78A  |( 9.15) | 4 Superior
|-------------------+------------+------------++---------+--------|
|MISSING      591  0|   .53      |            ||         |        |
+-----------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.
```

```
+----------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE|
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|
|------------------------+---------------------+---------+----------|
|    0      NONE         |( -6.33) -INF  -5.50|         |  0%   0%| 0 Unscorable
|    1     -5.07    .03  | -4.43  -5.50  -3.36| -5.27   | 45%  46%| 1 Minimal
|    2     -3.79    .02  |  -.94  -3.36   1.88| -3.58   | 75%  71%| 2 Limited
|    3      1.88    .01  |  4.96   1.88   8.05|  1.88   | 78%  84%| 3 Adequate
|    4      8.05    .01  |( 9.15)  8.05  +INF |  8.05   | 61%  47%| 4 Superior
+----------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3 P2D3C

Domain ITEM DIFFICULTY MEASURE OF .24 ADDED TO MEASURES

```
+----------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------+-+--------+--------|
|   0    0   1544   1| -4.33 -4.36|  .99   .90 || NONE A  |( -6.34)| 0 Unscorable
|   1    1   5591   4| -3.26 -3.07|  .89   .83 || -5.33A  | -4.41  | 1 Minimal
|   2    2  46946  32|   .23   .22|  .94   .90 || -3.97A  | -1.13  | 2 Limited
|   3    3  84352  58|  3.84  3.85| 1.02   .95 ||  1.19A  |  4.90  | 3 Adequate
|   4    4   7065   5|  7.77  7.63|  .93   .78 ||  8.12A  |( 9.46)| 4 Superior
|-----------------+------------+------------+-+--------+--------|
|MISSING    591   0|   .53      |           ||        |        |
+----------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE|
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|
|------------------------+---------------------+---------+----------|
|    0      NONE         |( -6.34) -INF  -5.50|         |  0%   0%| 0 Unscorable
|    1     -5.09    .03  | -4.41  -5.50  -3.33| -5.28   | 47%  47%| 1 Minimal
|    2     -3.73    .02  | -1.13  -3.33   1.45| -3.54   | 75%  70%| 2 Limited
|    3      1.44    .01  |  4.90   1.45   8.37|  1.44   | 81%  89%| 3 Adequate
|    4      8.36    .02  |( 9.46)  8.37  +INF |  8.37   | 64%  28%| 4 Superior
+----------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4 P2D4C

Domain ITEM DIFFICULTY MEASURE OF .20 ADDED TO MEASURES

```
+----------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------+-+--------+--------|
|   0    0   1544   1| -4.33 -4.33|  .98   .89 || NONE A  |( -6.36)| 0 Unscorable
|   1    1   5826   4| -3.21 -3.04|  .89   .82 || -5.31A  | -4.39  | 1 Minimal
|   2    2  50292  34|   .31   .34|  .90   .84 || -3.86A  |  -.98  | 2 Limited
|   3    3  78555  54|  3.89  3.85|  .96   .88 ||  1.47A  |  4.78  | 3 Adequate
|   4    4   9281   6|  7.46  7.49| 1.00   .90 ||  7.70A  |( 9.00)| 4 Superior
|-----------------+------------+------------+-+--------+--------|
|MISSING    591   0|   .53      |           ||        |        |
+----------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE|
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|
|------------------------+---------------------+---------+----------|
|    0      NONE         |( -6.36) -INF  -5.50|         |  0%   0%| 0 Unscorable
|    1     -5.11    .03  | -4.39  -5.50  -3.29| -5.29   | 48%  53%| 1 Minimal
|    2     -3.66    .02  |  -.98  -3.29   1.67| -3.49   | 80%  68%| 2 Limited
|    3      1.66    .01  |  4.78   1.67   7.90|  1.67   | 78%  89%| 3 Adequate
|    4      7.89    .01  |( 9.00)  7.90  +INF |  7.90   | 63%  44%| 4 Superior
+----------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P2D5C

Domain ITEM DIFFICULTY MEASURE OF .24 ADDED TO MEASURES

CATEGORY		OBSERVED		OBSVD	SAMPLE	INFIT	OUTFIT	STRUCTURE	CATEGORY		
LABEL	SCORE	COUNT	%	AVRGE	EXPECT	MNSQ	MNSQ	MEASURE	MEASURE		
0	0	1544	1	-4.33	-4.32	.94	.86	NONE A	(-6.43)	0	Unscorable
1	1	7130	5	-2.89	-2.93	1.03	.99	-5.47A	-4.28	1	Minimal
2	2	50456	35	.47	.46	.99	.97	-3.55A	-.77	2	Limited
3	3	76222	52	3.86	3.86	1.05	.98	1.52A	4.75	3	Adequate
4	4	10146	7	7.30	7.41	1.06	.97	7.50A	(8.84)	4	Superior
MISSING		591	0	.53							

AVERAGE MEASURE is mean of measures in category.

CATEGORY	STRUCTURE		SCORE-TO-MEASURE			50% CUM.	COHERENCE		OBS-EXP		
LABEL	MEASURE	S.E.	AT CAT.	----ZONE----		PROBABLTY	M->C	C->M	RESIDUAL		
0	NONE		(-6.43)	-INF	-5.52		0%	0%	-1.0%	0	Unscorable
1	-5.23	.03	-4.28	-5.52	-3.05	-5.36	50%	52%	-.4%	1	Minimal
2	-3.32	.02	-.77	-3.05	1.77	-3.20	73%	72%	.2%	2	Limited
3	1.75	.01	4.75	1.77	7.74	1.76	77%	83%	.0%	3	Adequate
4	7.74	.01	(8.84)	7.74	+INF	7.74	63%	41%	-.6%	4	Superior

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 6   P3D1C

Domain ITEM DIFFICULTY MEASURE OF .60 ADDED TO MEASURES

CATEGORY		OBSERVED		OBSVD	SAMPLE	INFIT	OUTFIT	STRUCTURE	CATEGORY		
LABEL	SCORE	COUNT	%	AVRGE	EXPECT	MNSQ	MNSQ	MEASURE	MEASURE		
0	0	3046	2	-4.19	-4.17	.86	.70	NONE A	(-5.50)	0	Unscorable
1	1	5833	4	-2.75	-2.72	.98	.87	-4.75A	-3.78	1	Minimal
2	2	55027	38	.72	.66	1.04	1.01	-3.99A	-.63	2	Limited
3	3	71294	49	3.95	4.00	1.08	1.02	1.49A	4.97	3	Adequate
4	4	9444	6	7.53	7.46	.94	.85	7.25A	(8.95)	4	Superior
MISSING		1445	1	.22							

AVERAGE MEASURE is mean of measures in category.

CATEGORY	STRUCTURE		SCORE-TO-MEASURE			50% CUM.	COHERENCE		OBS-EXP		
LABEL	MEASURE	S.E.	AT CAT.	----ZONE----		PROBABLTY	M->C	C->M	RESIDUAL		
0	NONE		(-5.50)	-INF	-4.74		58%	27%	-1.4%	0	Unscorable
1	-4.15	.02	-3.78	-4.74	-2.83	-4.45	34%	34%	-.4%	1	Minimal
2	-3.39	.02	-.63	-2.83	2.09	-3.10	71%	78%	.0%	2	Limited
3	2.09	.01	4.97	2.09	7.85	2.09	78%	77%	.1%	3	Adequate
4	7.85	.01	(8.95)	7.85	+INF	7.85	64%	44%	-.4%	4	Superior

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 7   P3D2C

```
Domain ITEM DIFFICULTY MEASURE OF .86 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|  0   0   3046   2 | -4.19 -4.05|  .80   .69 || NONE A  |( -5.64)| 0 Unscorable
|  1   1   8584   6 | -2.50 -2.45|  .92   .86 || -5.27A  |  -3.60 | 1 Minimal
|  2   2  62395  43 |  1.05  1.04|  .97   .92 || -3.63A  |   -.04 | 2 Limited
|  3   3  61832  42 |  4.28  4.28| 1.00   .94 ||  1.82A  |   5.31 | 3 Adequate
|  4   4   8787   6 |  7.62  7.56|  .93   .87 ||  7.08A  |( 9.04) | 4 Superior
|------------------+------------+------------++---------+--------+
|MISSING   1445   1 |  .22       |            ||         |        |
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.

+------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE|
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|
|------------------------+--------------------+---------+----------+
|    0     NONE          |( -5.64) -INF  -4.76|         | 58%  27% | 0 Unscorable
|    1    -4.41    .02   | -3.60  -4.76  -2.44| -4.57   | 49%  56% | 1 Minimal
|    2    -2.78    .01   |  -.04  -2.44   2.67| -2.63   | 76%  78% | 2 Limited
|    3     2.68    .01   |  5.31   2.67   7.95|  2.67   | 75%  76% | 3 Adequate
|    4     7.93    .01   |( 9.04)  7.95  +INF |  7.94   | 63%  47% | 4 Superior
+------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 8  P3D3C

Domain ITEM DIFFICULTY MEASURE OF 1.07 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|  0   0   3046   2 | -4.20 -4.03|  .78   .70 || NONE A  |( -5.69)| 0 Unscorable
|  1   1   9848   7 | -2.50 -2.36|  .83   .77 || -5.56A  |  -3.51 | 1 Minimal
|  2   2  59091  40 |  1.02  1.04|  .89   .84 || -3.58A  |    .02 | 2 Limited
|  3   3  67275  46 |  4.39  4.37|  .95   .90 ||  1.47A  |   5.64 | 3 Adequate
|  4   4   5384   4 |  8.02  7.81|  .88   .77 ||  7.67A  |( 9.84) | 4 Superior
|------------------+------------+------------++---------+--------+
|MISSING   1445   1 |  .21       |            ||         |        |
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.

+------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE|
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|
|------------------------+--------------------+---------+----------+
|    0     NONE          |( -5.69) -INF  -4.77|         | 58%  27% | 0 Unscorable
|    1    -4.49    .02   | -3.51  -4.77  -2.26| -4.61   | 55%  55% | 1 Minimal
|    2    -2.51    .01   |   .02  -2.26   2.55| -2.41   | 75%  81% | 2 Limited
|    3     2.54    .01   |  5.64   2.55   8.74|  2.54   | 80%  80% | 3 Adequate
|    4     8.74    .02   |( 9.84)  8.74  +INF |  8.74   | 63%  24% | 4 Superior
+------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 9  P3D4C

Domain ITEM DIFFICULTY MEASURE OF .83 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|  0   0   3046   2 | -4.19 -4.05|  .78   .70 || NONE A  |( -5.66)| 0 Unscorable
|  1   1   9500   7 | -2.59 -2.39|  .78   .71 || -5.29A  |  -3.52 | 1 Minimal
|  2   2  54308  37 |   .87   .90|  .88   .81 || -3.39A  |   -.15 | 2 Limited
|  3   3  69669  48 |  4.16  4.13|  .94   .89 ||  1.41A  |   5.17 | 3 Adequate
|  4   4   8121   6 |  7.70  7.57|  .91   .82 ||  7.27A  |( 9.20) | 4 Superior
|------------------+------------+------------++---------+--------+
|MISSING   1445   1 |  .22       |            ||         |        |
+------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M |
|------------------------+---------------------+---------+----------|
|   0       NONE        |( -5.66) -INF   -4.75|         | 58%  27%| 0 Unscorable
|   1      -4.47   .02 | -3.52  -4.75  -2.30| -4.59   | 55%  56%| 1 Minimal
|   2      -2.57   .01 |  -.15  -2.30   2.25| -2.45   | 75%  77%| 2 Limited
|   3       2.23   .01 |  5.17   2.25   8.10|  2.24   | 78%  83%| 3 Adequate
|   4       8.10   .01 |( 9.20)  8.10  +INF |  8.10   | 76%  29%| 4 Superior
+------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 10 P3D5C

Domain ITEM DIFFICULTY MEASURE OF .89 ADDED TO MEASURES

```
+----------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ|| MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0   0   3046   2| -4.20 -4.02|  .75    .71|| NONE A  |( -5.73)| 0 Unscorable
|  1   1  11693   8| -2.23 -2.22|  .92    .88|| -5.45A  | -3.36  | 1 Minimal
|  2   2  54257  37|  1.07  1.05|  .98    .93|| -3.04A  |   .11  | 2 Limited
|  3   3  66587  46|  4.15  4.15| 1.04   1.02||  1.48A  |  5.14  | 3 Adequate
|  4   4   9061   6|  7.41  7.48| 1.05    .99||  7.02A  |( 9.01)| 4 Superior
|-------------------+------------+------------++---------+--------+
|MISSING   1445   1|   .21      |            ||         |        |
+----------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M |
|------------------------+---------------------+---------+----------|
|   0       NONE        |( -5.73) -INF   -4.76|         | 58%  27%| 0 Unscorable
|   1      -4.56   .02 | -3.36  -4.76  -1.99| -4.64   | 58%  57%| 1 Minimal
|   2      -2.15   .01 |   .11  -1.99   2.38| -2.09   | 73%  73%| 2 Limited
|   3       2.37   .01 |  5.14   2.38   7.92|  2.37   | 75%  80%| 3 Adequate
|   4       7.90   .01 |( 9.01)  7.92  +INF |  7.91   | 61%  44%| 4 Superior
+------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 1 Item and Threshold Difficulty

```
+------------------------------------------------------------------------------+
|ENTRY   RAW                       |  INFIT  | OUTFIT |SCORE|        |        |
|NUMBER  SCORE  COUNT   MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G |
|-------------------------------------+----------+----------+-----+--------+--------|
|     1  22637   8423       .14A    .02| .46  -9.9| .42  -9.9| .92|   -.03| P1D1  0 |
|     2  21439   8423       .47A    .02| .47  -9.9| .44  -9.9| .92|    .02| P1D2  0 |
|     3  21405   8423       .53A    .02| .40  -9.9| .36  -9.9| .93|    .03| P1D3  0 |
|     4  21500   8423       .50A    .02| .40  -9.9| .36  -9.9| .93|    .02| P1D4  0 |
|     5  22559   8423       .17A    .02| .62  -9.9| .61  -9.9| .89|   -.04| P1D5  0 |
|                                     |          |          |     |        |        |
|-------------------------------------+----------+----------+-----+--------+--------|
| MEAN  21908.   8423.       .36    .02| .47  -9.9| .44  -9.9|     |        |        |
| S.D.    565.      1.       .17    .00| .08    .0| .09    .0|     |        |        |
+------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1

Domain ITEM DIFFICULTY MEASURE OF .14 ADDED TO MEASURES

```
+----------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0       0   0|            |  .00   .00|| NONE A |( -4.98)| 0 Unscorable
|   1    1     277   3|-2.99 -1.66|  .24   .18|| -3.63A | -3.44  | 1 Minimal
|   2    2    2766  33| -.08   .26|  .57   .54|| -3.52A |  -.92  | 2 Limited
|   3    3    4692  56| 3.43  3.08|  .60   .53|| 1.25A |  3.72  | 3 Adequate
|   4    4     688   8| 6.59  7.45|  .42   .35|| 5.90A |( 7.15)| 4 Superior
+----------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE  |50% CUM.| COHERENCE | OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|------------------------+-------------------+--------+----------+--------|
|    0     NONE          |( -4.98) -INF  -4.29|        |  0%   0% |  93.6  | 0 Unscorable
|    1    -3.49     .12  | -3.44  -4.29 -2.62| -3.94 | 79%  78% |  15.3% | 1 Minimal
|    2    -3.38     .07  |  -.92  -2.62  1.39| -2.94 | 89%  80% |  -2.8% | 2 Limited
|    3     1.39     .03  |  3.72   1.39  6.07|  1.39 | 85%  94% |   8.4% | 3 Adequate
|    4     6.04     .04  |( 7.15)  6.07 +INF |  6.05 | 88%  61% | -24.8% | 4 Superior
+--------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2

Domain ITEM DIFFICULTY MEASURE OF .47 ADDED TO MEASURES

```
+----------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0       0   0|            |  .00   .00|| NONE A |( -5.09)| 0 Unscorable
|   1    1     404   5|-2.90 -1.52|  .21   .11|| -4.23A | -3.32  | 1 Minimal
|   2    2    3548  42|  .51   .71|  .54   .53|| -3.35A |  -.29  | 2 Limited
|   3    3    3945  47| 3.87  3.42|  .66   .60|| 1.78A |  4.26  | 3 Adequate
|   4    4     526   6| 6.62  8.24|  .46   .44|| 5.79A |( 7.37)| 4 Superior
+----------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0     NONE         |( -5.09) -INF  -4.30 |         |  0%   0% |  97.3   | 0 Unscorable
|   1    -3.76   .11   | -3.32  -4.30  -2.36 |  -4.03  | 88%  84% | 10.9%   | 1 Minimal
|   2    -2.88   .06   |  -.29  -2.36   2.22 |  -2.61  | 82%  89% |   .4%   | 2 Limited
|   3     2.25   .03   |  4.26   2.22   6.31 |   2.24  | 86%  81% |  7.8%   | 3 Adequate
|   4     6.26   .05   |( 7.37)  6.31  +INF  |   6.28  | 71%  64% | -31.5%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3 P1D3

Domain ITEM DIFFICULTY MEASURE OF .53 ADDED TO MEASURES

```
+-------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+-----------++---------+--------+
|   0    0      0   0|            |  .00   .00 || NONE  A |( -5.13) | 0 Unscorable
|   1    1    450   5| -2.88 -1.49|  .18   .09 || -4.37A |  -3.27  | 1 Minimal
|   2    2   3320  39|   .41   .66|  .46   .43 || -3.23A |   -.29  | 2 Limited
|   3    3   4297  51|  3.91  3.40|  .58   .53 ||  1.53A |   4.33  | 3 Adequate
|   4    4    356   4|  7.04 10.09|  .36   .31 ||  6.07A |( 7.71)  | 4 Superior
+-------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0     NONE         |( -5.13) -INF  -4.31 |         |  0%   0% |  98.2   | 0 Unscorable
|   1    -3.84   .11   | -3.27  -4.31  -2.26 |  -4.07  | 97%  84% |  9.9%   | 1 Minimal
|   2    -2.70   .06   |  -.29  -2.26   2.05 |  -2.48  | 91%  84% |  -.3%   | 2 Limited
|   3     2.06   .03   |  4.33   2.05   6.63 |   2.06  | 87%  91% |  8.7%   | 3 Adequate
|   4     6.60   .05   |( 7.71)  6.63  +INF  |   6.61  | 65%  87% | -43.7%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4 P1D4

Domain ITEM DIFFICULTY MEASURE OF .50 ADDED TO MEASURES

```
+-------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+-----------++---------+--------+
|   0    0      0   0|            |  .00   .00 || NONE  A |( -5.14) | 0 Unscorable
|   1    1    460   5| -2.84 -1.49|  .20   .11 || -4.36A |  -3.27  | 1 Minimal
|   2    2   3251  39|   .36   .64|  .43   .39 || -3.16A |   -.30  | 2 Limited
|   3    3   4310  51|  3.89  3.37|  .59   .54 ||  1.51A |   4.26  | 3 Adequate
|   4    4    402   5|  6.81  9.46|  .46   .41 ||  6.01A |( 7.62)  | 4 Superior
+-------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0     NONE         |( -5.14) -INF  -4.31 |         |  0%   0% |  97.8   | 0 Unscorable
|   1    -3.86   .11   | -3.27  -4.31  -2.24 |  -4.08  | 95%  80% |  9.8%   | 1 Minimal
|   2    -2.66   .06   |  -.30  -2.24   2.01 |  -2.45  | 89%  84% |  -.6%   | 2 Limited
|   3     2.01   .03   |  4.26   2.01   6.54 |   2.01  | 86%  89% |  8.7%   | 3 Adequate
|   4     6.51   .05   |( 7.62)  6.54  +INF  |   6.52  | 58%  69% | -40.0%  | 4 Superior
+----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5

Domain ITEM DIFFICULTY MEASURE OF .17 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+-----------++---------+--------+
|   0    0     0   0|            |  .00   .00 ||  NONE A |( -5.07)| 0 Unscorable
|   1    1   390   5| -2.74 -1.57|  .33   .25 ||  -3.91A |  -3.32 | 1 Minimal
|   2    2  2781  33|   .18   .37|  .67   .67 ||  -3.05A |   -.64 | 2 Limited
|   3    3  4401  52|  3.42  3.10|  .82   .82 ||   1.35A |   3.65 | 3 Adequate
|   4    4   851  10|  5.95  6.79|  .68   .61 ||   5.61A |(  6.89)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+--------- |
|    0      NONE       |( -5.07) -INF   -4.29|         |   0%   0%|   96.1  | 0 Unscorable
|    1     -3.74   .11 | -3.32  -4.29  -2.37 |  -4.02  |  76%  75%|  12.5%  | 1 Minimal
|    2     -2.88   .06 |  -.64  -2.37   1.52 |  -2.61  |  73%  81%|  -2.5%  | 2 Limited
|    3      1.52   .03 |  3.65   1.52   5.82 |   1.52  |  81%  77%|   8.0%  | 3 Adequate
|    4      5.78   .04 |( 6.89)  5.82  +INF  |   5.79  |  63%  56%| -19.0%  | 4 Superior
+------------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 2 Item and Threshold Difficulty

```
+------------------------------------------------------------------------------+
|ENTRY  RAW                     |   INFIT  |  OUTFIT  |SCORE|        |         |
|NUMBER SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G |
|-----------------------------------+----------+----------+-----+--------+--------- |
|     1 22097   8406    .40A    .02| .54  -9.9| .49  -9.9| .90 |   -.02 | P1D1  0 |
|     2 21446   8406    .57A    .02| .48  -9.9| .43  -9.9| .91 |    .02 | P1D2  0 |
|     3 21127   8406    .74A    .02| .42  -9.9| .37  -9.9| .92 |    .02 | P1D3  0 |
|     4 21283   8406    .68A    .02| .42  -9.9| .38  -9.9| .92 |    .01 | P1D4  0 |
|     5 22253   8406    .35A    .02| .59  -9.9| .58  -9.9| .89 |   -.03 | P1D5  0 |
|-----------------------------------+----------+----------+-----+--------+--------- |
| MEAN  21641.  8406.    .55    .02| .49  -9.9| .45  -9.9|     |        |         |
| S.D.    450.     0.    .15    .00| .07   .0 | .08   .0 |     |        |         |
+------------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1

Domain ITEM DIFFICULTY MEASURE OF .40 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+-----------++---------+--------+
|   0    0     0   0|            |  .00   .00 ||  NONE A |( -4.95)| 0 Unscorable
|   1    1   331   4| -2.69 -1.52|  .37   .29 ||  -3.94A |  -3.31 | 1 Minimal
|   2    2  3007  36|   .21   .43|  .69   .65 ||  -3.47A |   -.64 | 2 Limited
|   3    3  4520  54|  3.69  3.40|  .67   .60 ||   1.29A |   4.11 | 3 Adequate
|   4    4   548   7|  6.88  7.88|  .46   .37 ||   6.12A |(  7.62)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL     MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+--------+---------+---------|
|   0       NONE        |( -4.95) -INF   -4.21|        |  0%   0%|   95.2  | 0 Unscorable
|   1      -3.54   .12  | -3.31  -4.21  -2.43 | -3.90  | 65%  78%|  12.8%  | 1 Minimal
|   2      -3.07   .06  |  -.64  -2.43   1.69 | -2.72  | 78%  82%|   -.8%  | 2 Limited
|   3       1.69   .03  |  4.11   1.69   6.54 |  1.69  | 86%  85%|   6.4%  | 3 Adequate
|   4       6.52   .05  |( 7.62)  6.54  +INF  |  6.53  | 82%  57%| -26.0%  | 4 Superior
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P1D2

Domain ITEM DIFFICULTY MEASURE OF .57 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+-----------++---------+--------+
|   0    0      0   0|            |  .00   .00|| NONE  A |( -4.99)| 0 Unscorable
|   1    1    385   5| -2.84 -1.45|  .20   .11|| -4.21A |  -3.26 | 1 Minimal
|   2    2   3488  41|  .50   .67|  .56   .53|| -3.45A |   -.31 | 2 Limited
|   3    3   4047  48| 3.98  3.62|  .65   .58||  1.62A |   4.40 | 3 Adequate
|   4    4    486   6| 6.89  8.22|  .48   .43||  6.04A |( 7.72)| 4 Superior
+------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL     MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+--------+---------+---------|
|   0       NONE        |( -4.99) -INF   -4.22|        |  0%   0%|   97.1  | 0 Unscorable
|   1      -3.64   .11  | -3.26  -4.22  -2.32 | -3.94  | 82%  85%|  11.0%  | 1 Minimal
|   2      -2.88   .06  |  -.31  -2.32   2.17 | -2.59  | 88%  80%|   1.4%  | 2 Limited
|   3       2.19   .03  |  4.40   2.17   6.64 |  2.18  | 81%  90%|   5.4%  | 3 Adequate
|   4       6.61   .05  |( 7.72)  6.64  +INF  |  6.62  | 76%  59%| -28.9%  | 4 Superior
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3 P1D3

Domain ITEM DIFFICULTY MEASURE OF .74 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+-----------++---------+--------+
|   0    0      0   0|            |  .00   .00|| NONE  A |( -5.06)| 0 Unscorable
|   1    1    478   6| -2.73 -1.38|  .21   .12|| -4.53A |  -3.17 | 1 Minimal
|   2    2   3400  40|  .51   .73|  .49   .44|| -3.29A |   -.16 | 2 Limited
|   3    3   4263  51| 4.14  3.67|  .58   .53||  1.44A |   4.65 | 3 Adequate
|   4    4    265   3| 7.26 10.93|  .46   .38||  6.38A |( 8.22)| 4 Superior
+------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL     MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+--------+---------+---------|
|   0       NONE        |( -5.06) -INF   -4.23|        |  0%   0%|   99.2  | 0 Unscorable
|   1      -3.79   .11  | -3.17  -4.23  -2.14 | -4.00  | 96%  80%|   9.4%  | 1 Minimal
|   2      -2.55   .06  |  -.16  -2.14   2.18 | -2.35  | 91%  84%|   1.0%  | 2 Limited
|   3       2.18   .03  |  4.65   2.18   7.14 |  2.18  | 85%  94%|   6.3%  | 3 Adequate
|   4       7.12   .06  |( 8.22)  7.14  +INF  |  7.13  | 69%  39%| -46.4%  | 4 Superior
+------------------------------------------------------------------------+
```

2002 PSSA Grade 6 and 9 Writing

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF .68 ADDED TO MEASURES
+-------------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE |CATEGORY|
|LABEL  SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE  | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0     0    0|            |  .00   .00 ||  NONE A  |( -5.05)| 0 Unscorable
|   1    1   472    6|-2.73 -1.40 |  .21   .12 || -4.46A  | -3.18  | 1 Minimal
|   2    2  3328   40|  .47   .69 |  .48   .43 || -3.24A  |  -.20  | 2 Limited
|   3    3  4269   51| 4.08  3.63 |  .58   .53 ||  1.43A  |  4.53  | 3 Adequate
|   4    4   337    4| 7.04  9.65 |  .52   .44 ||  6.27A  |( 8.05) | 4 Superior
+-------------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.

+-----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+-------------------+---------+----------+---------|
|   0     NONE          |( -5.05) -INF   -4.23|         |  0%   0%|   99.1  | 0 Unscorable
|   1    -3.78    .11   | -3.18  -4.23  -2.14| -3.99   | 95%  79%|   9.4%  | 1 Minimal
|   2    -2.56    .06   |  -.20  -2.14   2.11| -2.36   | 89%  84%|    .9%  | 2 Limited
|   3     2.11    .03   |  4.53   2.11   6.97|  2.11   | 85%  90%|   6.2%  | 3 Adequate
|   4     6.95    .05   |( 8.05)  6.97  +INF |  6.96   | 56%  63%|  -39.2% | 4 Superior
+-----------------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5

Domain ITEM DIFFICULTY MEASURE OF .35 ADDED TO MEASURES
+-------------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE |CATEGORY|
|LABEL  SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE  | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0     0    0|            |  .00   .00 ||  NONE A  |( -5.02)| 0 Unscorable
|   1    1   418    5|-2.65 -1.47 |  .31   .23 || -4.06A  | -3.22  | 1 Minimal
|   2    2  2860   34|  .29   .45 |  .67   .66 || -3.06A  |  -.50  | 2 Limited
|   3    3  4397   52| 3.61  3.33 |  .79   .78 ||  1.29A  |  3.91  | 3 Adequate
|   4    4   731    9| 6.31  7.09 |  .64   .55 ||  5.83A  |( 7.29) | 4 Superior
+-------------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.

+-----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+-------------------+---------+----------+---------|
|   0     NONE          |( -5.02) -INF   -4.22|         |  0%   0%|   96.3  | 0 Unscorable
|   1    -3.71    .11   | -3.22  -4.22  -2.24| -3.96   | 82%  77%|  11.3%  | 1 Minimal
|   2    -2.71    .06   |  -.50  -2.24   1.65| -2.47   | 75%  83%|  -1.3%  | 2 Limited
|   3     1.64    .03   |  3.91   1.65   6.21|  1.64   | 82%  79%|   6.5%  | 3 Adequate
|   4     6.18    .04   |( 7.29)  6.21  +INF |  6.19   | 63%  55%|  -19.3% | 4 Superior
+-----------------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 3 Item and Threshold Difficulty

```
+-------------------------------------------------------------------------------+
|ENTRY   RAW                    |  INFIT    OUTFIT  |SCORE|        |        |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|-------------------------------+----------+----------+-----+--------+--------|
|    1  21476   8222     .63A    .02| .52  -9.9| .48  -9.9| .90 |  -.01  | P1D1 0|
|    2  20816   8222     .80A    .02| .47  -9.9| .44  -9.9| .91 |   .02  | P1D2 0|
|    3  20754   8222     .87A    .02| .38  -9.9| .35  -9.9| .93 |   .02  | P1D3 0|
|    4  21243   8222     .69A    .02| .40  -9.9| .37  -9.9| .93 |   .00  | P1D4 0|
|    5  21813   8222     .52A    .02| .62  -9.9| .62  -9.9| .89 |  -.03  | P1D5 0|
|-------------------------------+----------+----------+-----+--------+--------|
| MEAN  21220.  8222.     .70    .02| .48  -9.9| .45  -9.9|     |        |        |
| S.D.    400.     0.     .12    .00| .08   .0| .10   .0|     |        |        |
+-------------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1

Domain ITEM DIFFICULTY MEASURE OF .63 ADDED TO MEASURES
+-----------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+-----------++---------+--------+
|  0    0      0   0 |            |  .00   .00 || NONE  A |( -4.42)| 0 Unscorable
|  1    1    304   4 |-2.31 -1.07|  .38   .29 || -3.50A  | -2.94  | 1 Minimal
|  2    2   3025  37 |  .31   .55 |  .66   .61 || -3.62A  |  -.52  | 2 Limited
|  3    3   4450  54 | 3.74  3.41 |  .65   .60 ||  1.15A  |  4.19  | 3 Adequate
|  4    4    443   5 | 6.88  8.38 |  .46   .37 ||  5.97A  |( 7.70) | 4 Superior
+-----------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+----------------------+---------+----------+---------|
|   0      NONE        |( -4.42) -INF   -3.75 |         |   0%   0%|  105.3  | 0 Unscorable
|   1      -2.87   .11 | -2.94  -3.75  -2.15  |  -3.39  |  63%  77%|  19.4%  | 1 Minimal
|   2      -2.99   .07 |  -.52  -2.15   1.78  |  -2.48  |  81%  82%|   -.4%  | 2 Limited
|   3       1.78   .03 |  4.19   1.78   6.62  |   1.78  |  87%  87%|   6.7%  | 3 Adequate
|   4       6.60   .05 |( 7.70)  6.62  +INF   |   6.61  |  77%  63%| -32.1%  | 4 Superior
+-----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2

Domain ITEM DIFFICULTY MEASURE OF .80 ADDED TO MEASURES
+-----------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+-----------++---------+--------+
|  0    0      0   0 |            |  .00   .00 || NONE  A |( -4.46)| 0 Unscorable
|  1    1    375   5 |-2.47 -1.01 |  .20   .10 || -3.82A  | -2.88  | 1 Minimal
|  2    2   3507  43 |  .64   .81 |  .58   .55 || -3.53A  |  -.16  | 2 Limited
|  3    3   3933  48 | 4.00  3.61 |  .66   .60 ||  1.50A  |  4.47  | 3 Adequate
|  4    4    407   5 | 6.86  8.62 |  .49   .44 ||  5.84A  |( 7.75) | 4 Superior
+-----------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+----------------------+---------+----------+---------|
|   0      NONE        |( -4.46) -INF   -3.75 |         |   0%   0%|  108.3  | 0 Unscorable
|   1      -3.02   .11 | -2.88  -3.75  -2.02  |  -3.43  |  85%  84%|  16.6%  | 1 Minimal
|   2      -2.73   .06 |  -.16  -2.02   2.28  |  -2.33  |  89%  77%|   1.4%  | 2 Limited
|   3       2.30   .03 |  4.47   2.28   6.68  |   2.29  |  80%  90%|   5.8%  | 3 Adequate
|   4       6.64   .05 |( 7.75)  6.68  +INF   |   6.65  |  71%  63%| -34.1%  | 4 Superior
+-----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .87 ADDED TO MEASURES
+-----------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+-----------++---------+--------+
|  0    0      0   0 |            |  .00   .00 || NONE  A |( -4.51)| 0 Unscorable
|  1    1    445   5 |-2.40  -.98 |  .20   .11 || -4.02A  | -2.82  | 1 Minimal
|  2    2   3301  40 |  .55   .79 |  .46   .41 || -3.34A  |  -.11  | 2 Limited
|  3    3   4197  51 | 4.06  3.60 |  .54   .51 ||  1.29A  |  4.55  | 3 Adequate
|  4    4    279   3 | 7.22 10.41 |  .40   .34 ||  6.07A  |( 8.05) | 4 Superior
+-----------------------------------------------------------------------
```

```
AVERAGE MEASURE is mean of measures in category.
+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  |50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+--------------------+---------+----------+---------|
|   0      NONE           |( -4.51) -INF   -3.76|         |  0%   0% |  110.1  | 0 Unscorable
|   1     -3.15    .11    | -2.82  -3.76  -1.90 |  -3.47  | 97%  81% |  14.9%  | 1 Minimal
|   2     -2.47    .06    |  -.11  -1.90   2.16 |  -2.17  | 91%  84% |    .7%  | 2 Limited
|   3      2.16    .03    |  4.55   2.16   6.96 |   2.16  | 87%  92% |   6.7%  | 3 Adequate
|   4      6.94    .06    |( 8.05)  6.96  +INF  |   6.95  | 63%  82% | -45.7%  | 4 Superior
+-------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF .69 ADDED TO MEASURES
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+-----------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE  A |( -4.50)| 0 Unscorable
|  1    1    418   5| -2.43 -1.01|  .19   .10 || -3.80A  | -2.84  | 1 Minimal
|  2    2   3076  37|   .41   .67|  .46   .43 || -3.24A  |  -.26  | 2 Limited
|  3    3   4239  52|  3.86  3.46|  .55   .52 ||  1.24A  |  4.21  | 3 Adequate
|  4    4    489   6|  6.74  8.04|  .49   .42 ||  5.79A  |( 7.59) | 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.

+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  |50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+--------------------+---------+----------+---------|
|   0      NONE           |( -4.50) -INF   -3.75|         |  0%   0% |  108.0  | 0 Unscorable
|   1     -3.11    .11    | -2.84  -3.75  -1.95 |  -3.45  | 91%  81% |  16.7%  | 1 Minimal
|   2     -2.55    .06    |  -.26  -1.95   1.93 |  -2.22  | 87%  86% |    .0%  | 2 Limited
|   3      1.93    .03    |  4.21   1.93   6.51 |   1.93  | 86%  90% |   6.4%  | 3 Adequate
|   4      6.48    .05    |( 7.59)  6.51  +INF  |   6.49  | 72%  53% | -29.8%  | 4 Superior
+-------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF .52 ADDED TO MEASURES
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+-----------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE  A |( -4.47)| 0 Unscorable
|  1    1    390   5| -2.25 -1.06|  .35   .26 || -3.58A  | -2.85  | 1 Minimal
|  2    2   2774  34|   .37   .53|  .70   .70 || -3.13A  |  -.42  | 2 Limited
|  3    3   4357  53|  3.57  3.29|  .82   .85 ||  1.11A  |  3.87  | 3 Adequate
|  4    4    701   9|  6.10  7.01|  .69   .61 ||  5.59A  |( 7.22) | 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.

+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  |50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+--------------------+---------+----------+---------|
|   0      NONE           |( -4.47) -INF   -3.74|         |  0%   0% |  107.5  | 0 Unscorable
|   1     -3.06    .11    | -2.85  -3.74  -1.98 |  -3.43  | 76%  72% |  17.1%  | 1 Minimal
|   2     -2.61    .06    |  -.42  -1.98   1.64 |  -2.26  | 73%  80% |  -1.4%  | 2 Limited
|   3      1.63    .03    |  3.87   1.64   6.14 |   1.63  | 81%  78% |   6.6%  | 3 Adequate
|   4      6.11    .04    |( 7.22)  6.14  +INF  |   6.12  | 60%  54% | -20.5%  | 4 Superior
+-------------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 4 Item and Threshold Difficulty

```
+------------------------------------------------------------------------------+
|ENTRY    RAW                       |    INFIT  | OUTFIT  |SCORE |        |       |
|NUMBER  SCORE   COUNT   MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR. |DISPLACE| Domai G|
|------------------------------+-----------+---------+------+--------+--------|
|     1  22816    8580     -.12A    .02| .53  -9.9| .47  -9.9|  .90 |   -.03 | P1D1  0|
|     2  21729    8580      .18A    .02| .53  -9.9| .48  -9.9|  .91 |    .02 | P1D2  0|
|     3  21587    8580      .31A    .02| .44  -9.9| .38  -9.9|  .92 |    .03 | P1D3  0|
|     4  21669    8580      .29A    .02| .43  -9.9| .37  -9.9|  .92 |    .01 | P1D4  0|
|     5  22680    8580     -.06A    .02| .67  -9.9| .64  -9.9|  .88 |   -.04 | P1D5  0|
|------------------------------+-----------+---------+------+--------+--------|
| MEAN  22096.   8580.      .12    .02| .52  -9.9| .47  -9.9|      |        |        |
| S.D.    536.      0.      .18    .00| .09    .0| .10    .0|      |        |        |
+------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.12 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------|
|  0    0      0    0|            |  .00   .00|| NONE   A |( -6.07)| 0 Unscorable
|  1    1    318    4|-3.49 -2.58| .36   .30|| -4.69A  | -4.15  | 1 Minimal
|  2    2   2907   34| -.09   .21| .64   .61|| -3.36A  |  -.99  | 2 Limited
|  3    3   4736   55| 3.53  3.21| .66   .57||  1.57A  |  3.91  | 3 Adequate
|  4    4    619    7| 6.81  7.81| .45   .36||  6.48A  |( 7.46) | 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.
```

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+------------------+---------+----------+---------|
|   0      NONE         |( -6.07) -INF  -5.23|         |  0%   0% |  68.1  | 0 Unscorable
|   1     -4.81    .13  | -4.15  -5.23  -3.08| -5.01   | 80%  79% |   .5%  | 1 Minimal
|   2     -3.48    .07  |  -.99  -3.08   1.45| -3.29   | 88%  78% | -1.8%  | 2 Limited
|   3      1.45    .03  |  3.91   1.45   6.38|  1.45   | 84%  93% |  7.3%  | 3 Adequate
|   4      6.36    .05  |( 7.46)  6.38  +INF |  6.37   | 87%  57% |-24.4%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .18 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------|
|  0    0      0    0|            |  .00   .00|| NONE   A |( -6.19)| 0 Unscorable
|  1    1    430    5|-3.46 -2.36| .26   .16|| -5.17A  | -4.02  | 1 Minimal
|  2    2   3684   43|  .48   .64| .60   .58|| -3.23A  |  -.38  | 2 Limited
|  3    3   3933   46| 3.94  3.56| .70   .62||  2.10A  |  4.38  | 3 Adequate
|  4    4    533    6| 6.77  8.14| .49   .46||  6.30A  |( 7.59) | 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.
```

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+------------------+---------+----------+---------|
|   0      NONE         |( -6.19) -INF  -5.27|         |  0%   0% |  69.8  | 0 Unscorable
|   1     -4.99    .13  | -4.02  -5.27  -2.78| -5.11   | 86%  86% |   .2%  | 1 Minimal
|   2     -3.05    .06  |  -.38  -2.78   2.25| -2.93   | 89%  77% |  1.5%  | 2 Limited
|   3      2.28    .03  |  4.38   2.25   6.52|  2.27   | 78%  90% |  5.7%  | 3 Adequate
|   4      6.48    .05  |( 7.59)  6.52  +INF |  6.49   | 75%  57% |-27.1%  | 4 Superior
+---------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .31 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|   0   0      0   0 |            |  .00   .00 ||  NONE A |( -6.25)| 0 Unscorable
|   1   1    498   6 | -3.41 -2.28|  .21   .12 || -5.39A  | -3.94  | 1 Minimal
|   2   2   3456  40 |   .40   .62|  .51   .45 || -3.10A  |  -.33  | 2 Limited
|   3   3   4327  50 |  4.05  3.56|  .60   .53 ||  1.80A  |  4.56  | 3 Adequate
|   4   4    299   3 |  7.24 10.79|  .43   .35 ||  6.69A  |( 8.10) | 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+-----------------+---------+----------+---------+
|   0      NONE        |( -6.25) -INF  -5.30|         |  0%   0% |  70.4   | 0 Unscorable
|   1     -5.08    .13 | -3.94  -5.30  -2.59| -5.17   | 96%  83% |  -.2%   | 1 Minimal
|   2     -2.79    .06 |  -.33  -2.59   2.11| -2.71   | 90%  83% |   .9%   | 2 Limited
|   3      2.11    .03 |  4.56   2.11   7.02|  2.11   | 85%  93% |  6.8%   | 3 Adequate
|   4      7.00    .05 |( 8.10)  7.02  +INF |  7.01   | 70%  45% | -44.1%  | 4 Superior
+---------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF .29 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|   0   0      0   0 |            |  .00   .00 ||  NONE A |( -6.25)| 0 Unscorable
|   1   1    517   6 | -3.35 -2.26|  .23   .14 || -5.38A  | -3.90  | 1 Minimal
|   2   2   3390  40 |   .37   .62|  .48   .42 || -3.00A  |  -.31  | 2 Limited
|   3   3   4320  50 |  4.01  3.52|  .59   .53 ||  1.79A  |  4.48  | 3 Adequate
|   4   4    353   4 |  7.07  9.84|  .49   .42 ||  6.59A  |( 7.98) | 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+-----------------+---------+----------+---------+
|   0      NONE        |( -6.25) -INF  -5.29|         |  0%   0% |  71.2   | 0 Unscorable
|   1     -5.09    .13 | -3.90  -5.29  -2.53| -5.17   | 94%  78% |  -.7%   | 1 Minimal
|   2     -2.71    .06 |  -.31  -2.53   2.08| -2.64   | 89%  84% |   .5%   | 2 Limited
|   3      2.08    .03 |  4.48   2.08   6.90|  2.08   | 86%  90% |  7.0%   | 3 Adequate
|   4      6.88    .05 |( 7.98)  6.90  +INF |  6.89   | 59%  68% | -38.9%  | 4 Superior
+---------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5

Domain ITEM DIFFICULTY MEASURE OF -.06 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|   0   0      0   0 |            |  .00   .00 ||  NONE A |( -6.21)| 0 Unscorable
|   1   1    462   5 | -3.18 -2.34|  .41   .32 || -4.97A  | -3.95  | 1 Minimal
|   2   2   2942  34 |   .20   .37|  .74   .71 || -2.81A  |  -.61  | 2 Limited
|   3   3   4370  51 |  3.53  3.23|  .85   .82 ||  1.69A  |  3.83  | 3 Adequate
|   4   4    806   9 |  6.15  6.99|  .68   .61 ||  6.09A  |( 7.14) | 4 Superior
+--------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE  |50% CUM. |COHERENCE|OBS-EXP  |
| LABEL    MEASURE  S.E. |AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+---------|
|   0      NONE          |( -6.21) -INF  -5.27|         |  0%   0%|   69.9  | 0 Unscorable
|   1      -5.03    .13  | -3.95 -5.27  -2.66 | -5.13   | 79%  74%|    .1%  | 1 Minimal
|   2      -2.87    .06  |  -.61 -2.66   1.63 | -2.78   | 74%  80%|  -1.2%  | 2 Limited
|   3       1.63    .03  |  3.83  1.63   6.06 |  1.63   | 80%  78%|   6.8%  | 3 Adequate
|   4       6.03    .04  |( 7.14)  6.06  +INF |  6.04   | 61%  54%| -17.7%  | 4 Superior
+-----------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 5 Item and Threshold Difficulty

```
+---------------------------------------------------------------------------------+
|ENTRY    RAW                       |  INFIT   | OUTFIT  |SCORE|         |         |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE | Domai G |
|-----------------------------------+----------+---------+-----+---------+---------|
|   1    22302  8431     .33A    .02| .50  -9.9| .45  -9.9| .91 |   -.03  | P1D1  0 |
|   2    21523  8431     .54A    .02| .49  -9.9| .44  -9.9| .91 |    .01  | P1D2  0 |
|   3    21312  8431     .70A    .02| .43  -9.9| .37  -9.9| .92 |    .01  | P1D3  0 |
|   4    21253  8431     .67A    .02| .41  -9.9| .36  -9.9| .92 |    .02  | P1D4  0 |
|   5    21882  8431     .45A    .02| .65  -9.9| .62  -9.9| .89 |   -.01  | P1D5  0 |
|-----------------------------------+----------+---------+-----+---------+---------|
| MEAN   21654. 8431.     .54    .02| .50  -9.9| .45  -9.9|     |         |         |
| S.D.     392.    0.     .14    .00| .08   .0 | .09   .0 |     |         |         |
+---------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF .33 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ |MEASURE | MEASURE |
|-------------------+------------+-----------+--------+--------|
|  0    0       0   0|            | .00   .00 | NONE  A |( -5.04)| 0 Unscorable
|  1    1     305   4|-2.88 -1.63| .29   .22 | -3.96A | -3.42  | 1 Minimal
|  2    2    2965  35|  .14   .41| .62   .58 | -3.53A |  -.72  | 2 Limited
|  3    3    4577  54| 3.69  3.37| .63   .56 |  1.33A |  4.08  | 3 Adequate
|  4    4     584   7| 6.92  7.80| .44   .35 |  6.16A |( 7.59) | 4 Superior
+-----------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE  |50% CUM. |COHERENCE|OBS-EXP  |
| LABEL    MEASURE  S.E. |AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+---------|
|   0      NONE          |( -5.04) -INF  -4.32|         |  0%   0%|   89.6  | 0 Unscorable
|   1      -3.63    .12  | -3.42 -4.32  -2.54 | -4.00   | 81%  76%|  12.3%  | 1 Minimal
|   2      -3.20    .07  |  -.72 -2.54   1.66 | -2.84   | 89%  78%|  -1.6%  | 2 Limited
|   3       1.66    .03  |  4.08  1.66   6.51 |  1.66   | 83%  94%|   6.9%  | 3 Adequate
|   4       6.49    .05  |( 7.59)  6.51  +INF |  6.50   | 86%  54%| -24.6%  | 4 Superior
+-----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .54 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ |MEASURE | MEASURE |
|-------------------+------------+-----------+--------+--------|
|  0    0       0   0|            | .00   .00 | NONE  A |( -5.11)| 0 Unscorable
|  1    1     386   5|-2.89 -1.54| .22   .12 | -4.33A | -3.34  | 1 Minimal
|  2    2    3514  42|  .54   .71| .59   .57 | -3.42A |  -.29  | 2 Limited
|  3    3    4015  48| 3.98  3.63| .66   .58 |  1.71A |  4.42  | 3 Adequate
|  4    4     516   6| 6.93  8.10| .46   .41 |  6.05A |( 7.70) | 4 Superior
+-----------------------------------------------------------------+
```

```
AVERAGE MEASURE is mean of measures in category.
+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+--------|
|   0     NONE          | ( -5.11) -INF   -4.33|         |  0%   0%|  92.3   | 0 Unscorable
|   1    -3.79    .12   |  -3.34  -4.33  -2.37 | -4.06   | 83%  84%|  9.4%   | 1 Minimal
|   2    -2.88    .06   |   -.29  -2.37   2.23 | -2.62   | 88%  80%|   .9%   | 2 Limited
|   3     2.25    .03   |   4.42   2.23   6.63 |  2.24   | 81%  90%|  5.8%   | 3 Adequate
|   4     6.59    .05   | ( 7.70)  6.63  +INF  |  6.60   | 79%  56%| -27.2%  | 4 Superior
+------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .70 ADDED TO MEASURES
+------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+-----------+-----------++---------+--------+
|   0    0      0   0|            |  .00   .00 || NONE A |( -5.17) | 0 Unscorable
|   1    1    448   5| -2.85 -1.50|  .19   .11 || -4.60A | -3.27   | 1 Minimal
|   2    2   3329  39|   .47   .70|  .51   .45 || -3.34A |  -.24   | 2 Limited
|   3    3   4410  52|  4.11  3.65|  .61   .55 ||  1.41A |  4.67   | 3 Adequate
|   4    4    244   3|  7.45 11.59|  .42   .32 ||  6.53A |( 8.33)  | 4 Superior
+------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.

+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+--------|
|   0     NONE          | ( -5.17) -INF   -4.34|         |  0%   0%|  93.6   | 0 Unscorable
|   1    -3.90    .12   |  -3.27  -4.34  -2.23 | -4.11   | 95%  83%|  8.0%   | 1 Minimal
|   2    -2.64    .06   |   -.24  -2.23   2.12 | -2.44   | 89%  85%|   .3%   | 2 Limited
|   3     2.11    .03   |   4.67   2.12   7.25 |  2.11   | 87%  92%|  6.8%   | 3 Adequate
|   4     7.23    .06   | ( 8.33)  7.25  +INF  |  7.24   | 70%  47%| -48.7%  | 4 Superior
+------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .67 ADDED TO MEASURES
+------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+-----------+-----------++---------+--------+
|   0    0      0   0|            |  .00   .00 || NONE A |( -5.19) | 0 Unscorable
|   1    1    474   6| -2.80 -1.47|  .21   .11 || -4.61A | -3.25   | 1 Minimal
|   2    2   3449  41|   .54   .77|  .47   .42 || -3.23A |  -.13   | 2 Limited
|   3    3   4151  49|  4.14  3.67|  .57   .50 ||  1.58A |  4.59   | 3 Adequate
|   4    4    357   4|  7.14  9.52|  .48   .42 ||  6.26A |( 8.04)  | 4 Superior
+------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.

+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+--------|
|   0     NONE          | ( -5.19) -INF   -4.35|         |  0%   0%|  93.2   | 0 Unscorable
|   1    -3.94    .12   |  -3.25  -4.35  -2.18 | -4.13   | 94%  78%|  7.8%   | 1 Minimal
|   2    -2.56    .06   |   -.13  -2.18   2.25 | -2.38   | 89%  83%|  1.0%   | 2 Limited
|   3     2.25    .03   |   4.59   2.25   6.96 |  2.25   | 84%  91%|  6.2%   | 3 Adequate
|   4     6.93    .05   | ( 8.04)  6.96  +INF  |  6.94   | 62%  65%| -37.8%  | 4 Superior
+------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5  P1D5
Domain ITEM DIFFICULTY MEASURE OF .45 ADDED TO MEASURES
+-------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0   0      0   0|           |   .00   .00|| NONE A  |( -5.16)| 0 Unscorable
|  1   1    437   5| -2.64 -1.51|   .36   .25|| -4.33A  |  -3.28 | 1 Minimal
|  2   2   3160  37|   .50   .61|   .72   .70|| -3.12A  |   -.33 | 2 Limited
|  3   3   4211  50|  3.80  3.49|   .87   .85||  1.51A  |  4.18  | 3 Adequate
|  4   4    623   7|  6.36  7.57|   .70   .61||  5.94A  |( 7.50) | 4 Superior
+-------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+-------------------+---------+----------+---------
|   0     NONE           |( -5.16) -INF  -4.33|         |  0%   0%|  92.3   | 0 Unscorable
|   1    -3.88     .12   | -3.28  -4.33  -2.25| -4.10   | 81%  72%|  9.3%   | 1 Minimal
|   2    -2.67     .06   |  -.33  -2.25   1.95| -2.46   | 78%  79%|  -.1%   | 2 Limited
|   3     1.96     .03   |  4.18   1.95   6.42|  1.96   | 78%  83%|  6.2%   | 3 Adequate
|   4     6.39     .05   |( 7.50)  6.42  +INF |  6.40   | 61%  36%| -23.0%  | 4 Superior
+----------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 6 Item and Threshold Difficulty

```
+--------------------------------------------------------------------------+
|ENTRY   RAW                       |INFIT  |OUTFIT |SCORE|        |         |
|NUMBER  SCORE  COUNT  MEASURE ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR.|DISPLACE| Domai G|
|----------------------------------+---------+---------+-----+--------+---------
|    1  22327  8185   -.61A   .02| .51 -9.9| .48 -9.9| .91 |  -.01  | P1D1 0|
|    2  21968  8185   -.51A   .02| .48 -9.9| .45 -9.9| .92 |  -.01  | P1D2 0|
|    3  21644  8185   -.38A   .02| .41 -9.9| .37 -9.9| .93 |   .02  | P1D3 0|
|    4  21766  8185   -.41A   .02| .43 -9.9| .41 -9.9| .93 |  -.01  | P1D4 0|
|    5  21866  8185   -.44A   .02| .71 -9.9| .70 -9.9| .88 |  -.01  | P1D5 0|
|----------------------------------+---------+---------+-----+--------+---------
| MEAN  21914.  8185.   -.47   .02| .51 -9.9| .48 -9.9|     |        |         |
| S.D.    233.     1.    .08   .00| .11   .0| .12   .0|     |        |         |
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1
Domain ITEM DIFFICULTY MEASURE OF -.61 ADDED TO MEASURES
+-------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0   0      0   0|           |   .00   .00|| NONE A  |( -6.21)| 0 Unscorable
|  1   1    275   3| -3.69 -2.74|   .33   .28|| -4.33A  |  -4.32 | 1 Minimal
|  2   2   2531  31|  -.38  -.02|   .62   .60|| -3.09A  |  -1.32 | 2 Limited
|  3   3   4526  55|  2.86  2.48|   .67   .60||  1.63A  |  3.10  | 3 Adequate
|  4   4    853  10|  5.76  6.65|   .43   .39||  5.78A  |( 6.28) | 4 Superior
+-------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+-------------------+---------+----------+---------
|   0     NONE           |( -6.21) -INF  -5.38|         |  0%   0%|  61.1   | 0 Unscorable
|   1    -4.94     .14   | -4.32  -5.38  -3.29| -5.15   | 82%  74%|  -.8%   | 1 Minimal
|   2    -3.70     .07   | -1.32  -3.29   1.00| -3.50   | 79%  83%|  -3.9%  | 2 Limited
|   3     1.02     .03   |  3.10   1.00   5.21|  1.01   | 85%  86%|  10.4%  | 3 Adequate
|   4     5.17     .04   |( 6.28)  5.21  +INF |  5.19   | 82%  69%| -23.5%  | 4 Superior
+----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2

Domain ITEM DIFFICULTY MEASURE OF -.51 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0    0     0    0|            |  .00   .00 || NONE A  |( -6.27)| 0 Unscorable
|  1    1   322    4| -3.77 -2.63|  .21   .14 || -4.53A  | -4.27  | 1 Minimal
|  2    2  2801   34|  -.17   .16|  .53   .52 || -2.98A  | -1.06  | 2 Limited
|  3    3  4204   51|  3.00  2.57|  .65   .58 ||  1.85A  |  3.24  | 3 Adequate
|  4    4   858   10|  5.70  6.58|  .45   .45 ||  5.65A  |( 6.26)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0       NONE       |( -6.27) -INF  -5.41|         |  0%   0% |  61.4   | 0 Unscorable
|   1      -5.04    .14|  -4.27 -5.41 -3.15 |  -5.21  | 83%  88% |   -.6%  | 1 Minimal
|   2      -3.49    .07|  -1.06 -3.15  1.30 |  -3.33  | 86%  79% |  -2.7%  | 2 Limited
|   3       1.34    .03|   3.24  1.30  5.20 |   1.33  | 82%  89% |  10.4%  | 3 Adequate
|   4       5.14    .04|( 6.26)  5.20  +INF |   5.16  | 80%  67% | -22.9%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF -.38 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0    0     0    0|            |  .00   .00 || NONE A  |( -6.36)| 0 Unscorable
|  1    1   394    5| -3.65 -2.53|  .21   .14 || -4.79A  | -4.17  | 1 Minimal
|  2    2  2701   33|  -.18   .19|  .45   .42 || -2.78A  |  -.93  | 2 Limited
|  3    3  4512   55|  3.14  2.60|  .59   .54 ||  1.66A  |  3.40  | 3 Adequate
|  4    4   578    7|  6.10  8.17|  .35   .32 ||  5.90A  |( 6.63)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0       NONE       |( -6.36) -INF  -5.44|         |  0%   0% |  62.0   | 0 Unscorable
|   1      -5.17    .14|  -4.17 -5.44 -2.93 |  -5.28  | 96%  84% |  -1.1%  | 1 Minimal
|   2      -3.16    .06|   -.93 -2.93  1.27 |  -3.06  | 88%  84% |  -2.8%  | 2 Limited
|   3       1.28    .03|   3.40  1.27  5.56 |   1.28  | 89%  90% |  11.6%  | 3 Adequate
|   4       5.52    .04|( 6.63)  5.56  +INF |   5.53  | 70%  87% | -35.9%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF -.41 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0    0     0    0|            |  .00   .00 || NONE A  |( -6.39)| 0 Unscorable
|  1    1   432    5| -3.54 -2.47|  .23   .16 || -4.81A  | -4.11  | 1 Minimal
|  2    2  2715   33|  -.12   .24|  .43   .41 || -2.59A  |  -.82  | 2 Limited
|  3    3  4248   52|  3.09  2.59|  .61   .57 ||  1.76A  |  3.29  | 3 Adequate
|  4    4   790   10|  5.70  6.81|  .49   .47 ||  5.64A  |( 6.34)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  |50% CUM. |COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY|M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+---------+---------|
|    0      NONE        |( -6.39) -INF  -5.45|         |  0%   0%|  62.2   | 0 Unscorable
|    1     -5.22   .14  | -4.11 -5.45 -2.81| -5.31   | 95%  75%|  -1.6%  | 1 Minimal
|    2     -3.00   .06  |  -.82 -2.81  1.33| -2.92   | 86%  81%|  -2.7%  | 2 Limited
|    3      1.35   .03  |  3.29  1.33  5.29|  1.34   | 83%  89%|  10.7%  | 3 Adequate
|    4      5.23   .04  |( 6.34)  5.29 +INF|  5.25   | 71%  65%| -25.2%  | 4 Superior
+-----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF -.44 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE | MEASURE|
|------------------+------------+-----------++---------+--------|
|   0    0      0   0|            |  .00   .00 || NONE A |( -6.39)| 0 Unscorable
|   1    1    427   5| -3.28 -2.47|  .45   .37 || -4.77A | -4.12  | 1 Minimal
|   2    2   2647  32|  -.02   .21|  .69   .66 || -2.58A |  -.86  | 2 Limited
|   3    3   4299  53|  3.04  2.57|  .97  1.01 ||  1.72A |  3.24  | 3 Adequate
|   4    4    812  10|  5.14  6.75|  .80   .76 ||  5.64A |( 6.31)| 4 Superior
+-------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  |50% CUM. |COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY|M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+---------+---------|
|    0      NONE        |( -6.39) -INF  -5.45|         |  0%   0%|  62.2   | 0 Unscorable
|    1     -5.21   .14  | -4.12 -5.45 -2.82| -5.31   | 83%  67%|  -1.1%  | 1 Minimal
|    2     -3.02   .06  |  -.86 -2.82  1.26| -2.94   | 75%  73%|  -3.1%  | 2 Limited
|    3      1.28   .03  |  3.24  1.26  5.25|  1.27   | 75%  80%|  10.7%  | 3 Adequate
|    4      5.20   .04  |( 6.31)  5.25 +INF|  5.22   | 49%  43%| -24.7%  | 4 Superior
+-----------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 7 Item and Threshold Difficulty

```
+-----------------------------------------------------------------------------+
|ENTRY   RAW          |        INFIT   OUTFIT  |SCORE|        |       |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|----------------------------------+----------+----------+-----+--------+--------|
|    1  21916   8226    .13A    .02| .55  -9.9| .51  -9.9| .90 |    .00 | P1D1  0|
|    2  21605   8226    .21A    .02| .50  -9.9| .46  -9.9| .91 |    .00 | P1D2  0|
|    3  21505   8226    .28A    .02| .41  -9.9| .36  -9.9| .92 |    .01 | P1D3  0|
|    4  21363   8226    .29A    .02| .43  -9.9| .39  -9.9| .92 |    .01 | P1D4  0|
|    5  21834   8226    .15A    .02| .69  -9.9| .68  -9.9| .88 |   -.02 | P1D5  0|
|----------------------------------+----------+----------+-----+--------+--------|
|MEAN  21645.  8226.    .21     .02| .52  -9.9| .48  -9.9|     |        |       |
|S.D.    205.     0.    .07     .00| .10    .0| .11    .0|     |        |       |
+-----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF .13 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE | MEASURE|
|------------------+------------+-----------++---------+--------|
|   0    0      0   0|            |  .00   .00 || NONE A |( -5.07)| 0 Unscorable
|   1    1    277   3| -2.68 -1.64|  .45   .36 || -3.77A | -3.47  | 1 Minimal
|   2    2   2733  33|   .00   .28|  .67   .62 || -3.41A |  -.90  | 2 Limited
|   3    3   4691  57|  3.33  3.00|  .70   .66 ||  1.22A |  3.73  | 3 Adequate
|   4    4    525   6|  6.41  7.82|  .47   .39 ||  5.97A |( 7.21)| 4 Superior
+-------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+---------+----------+---------|
|   0      NONE         |( -5.07) -INF   -4.35|         |  0%   0% |  77.3   | 0 Unscorable
|   1     -3.64    .13  | -3.47  -4.35  -2.61| -4.03   | 71%  72% |  11.0%  | 1 Minimal
|   2     -3.28    .07  |  -.90  -2.61   1.35| -2.90   | 78%  80% |  -2.1%  | 2 Limited
|   3      1.35    .03  |  3.73   1.35   6.13|  1.35   | 85%  86% |   7.7%  | 3 Adequate
|   4      6.10    .05  |( 7.21)  6.13  +INF |  6.11   | 75%  60% | -30.2%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .21 ADDED TO MEASURES

```
+-----------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0   0      0   0 |            |  .00   .00 || NONE  A |( -5.07)| 0 Unscorable
|  1   1    277   3 | -3.00 -1.62|  .22   .12 || -3.84A  | -3.47  | 1 Minimal
|  2   2   3022  37 |  .15   .41 |  .59   .55 || -3.51A  |  -.78  | 2 Limited
|  3   3   4424  54 | 3.46  3.09 |  .68   .62 ||  1.43A  |  3.89  | 3 Adequate
|  4   4    503   6 | 6.44  7.91 |  .47   .42 ||  5.92A  |( 7.24)| 4 Superior
+-----------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+---------+----------+---------|
|   0      NONE         |( -5.07) -INF   -4.35|         |  0%   0% |  78.0   | 0 Unscorable
|   1     -3.63    .13  | -3.47  -4.35  -2.61| -4.03   | 82%  83% |  10.3%  | 1 Minimal
|   2     -3.30    .07  |  -.78  -2.61   1.63| -2.91   | 86%  79% |  -1.2%  | 2 Limited
|   3      1.64    .03  |  3.89   1.63   6.16|  1.64   | 84%  90% |   7.6%  | 3 Adequate
|   4      6.13    .05  |( 7.24)  6.16  +INF |  6.14   | 75%  62% | -30.9%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .28 ADDED TO MEASURES

```
+-----------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0   0      0   0 |            |  .00   .00 || NONE  A |( -5.11)| 0 Unscorable
|  1   1    319   4 | -2.96 -1.60|  .20   .12 || -4.02A  | -3.42  | 1 Minimal
|  2   2   2886  35 |  .07   .39 |  .50   .44 || -3.37A  |  -.73  | 2 Limited
|  3   3   4670  57 | 3.53  3.08 |  .58   .54 ||  1.26A  |  3.98  | 3 Adequate
|  4   4    351   4 | 6.88  9.65 |  .35   .27 ||  6.13A  |( 7.51)| 4 Superior
+-----------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+---------+----------+---------|
|   0      NONE         |( -5.11) -INF   -4.36|         |  0%   0% |  79.0   | 0 Unscorable
|   1     -3.74    .13  | -3.42  -4.36  -2.51| -4.06   | 93%  82% |   9.0%  | 1 Minimal
|   2     -3.09    .07  |  -.73  -2.51   1.55| -2.78   | 88%  85% |  -1.8%  | 2 Limited
|   3      1.54    .03  |  3.98   1.55   6.43|  1.54   | 90%  91% |   8.6%  | 3 Adequate
|   4      6.41    .05  |( 7.51)  6.43  +INF |  6.42   | 70%  84% | -42.9%  | 4 Superior
+---------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .29 ADDED TO MEASURES
+--------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0   0 |            |  .00   .00 || NONE  A |( -5.15)| 0 Unscorable
|  1    1    365   4 |-2.85 -1.56 |  .24   .14 || -4.12A  | -3.37  | 1 Minimal
|  2    2   3090  38 |  .22   .52 |  .47   .43 || -3.19A  |  -.53  | 2 Limited
|  3    3   4266  52 | 3.58  3.14 |  .58   .54 ||  1.49A  |  3.95  | 3 Adequate
|  4    4    505   6 | 6.40  7.87 |  .48   .43 ||  5.82A  |( 7.22)| 4 Superior
+--------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |   SCORE-TO-MEASURE  | 50% CUM.| COHERENCE|OBS-EXP  |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------+
|   0      NONE         |( -5.15) -INF  -4.36 |         |   0%   0%|   80.0  | 0 Unscorable
|   1     -3.83    .13  | -3.37  -4.36  -2.40 |  -4.09  |  92%  70%|   7.2%  | 1 Minimal
|   2     -2.90    .06  |  -.53  -2.40   1.77 |  -2.64  |  88%  80%|   -.6%  | 2 Limited
|   3      1.78    .03  |  3.95   1.77   6.15 |   1.78  |  82%  92%|   7.5%  | 3 Adequate
|   4      6.11    .05  |( 7.22)  6.15  +INF  |   6.12  |  70%  58%|  -30.8% | 4 Superior
+------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF .15 ADDED TO MEASURES
+--------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0   0 |            |  .00   .00 || NONE  A |( -5.14)| 0 Unscorable
|  1    1    358   4 |-2.54 -1.58 |  .46   .36 || -3.97A  | -3.37  | 1 Minimal
|  2    2   2842  35 |  .25   .40 |  .74   .71 || -3.06A  |  -.64  | 2 Limited
|  3    3   4312  52 | 3.32  3.03 |  .93   .96 ||  1.40A  |  3.67  | 3 Adequate
|  4    4    714   9 | 5.73  6.73 |  .70   .64 ||  5.63A  |( 6.89)| 4 Superior
+--------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |   SCORE-TO-MEASURE  | 50% CUM.| COHERENCE|OBS-EXP  |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------+
|   0      NONE         |( -5.14) -INF  -4.36 |         |   0%   0%|   79.3  | 0 Unscorable
|   1     -3.82    .13  | -3.37  -4.36  -2.41 |  -4.09  |  77%  60%|   8.0%  | 1 Minimal
|   2     -2.91    .06  |  -.64  -2.41   1.54 |  -2.65  |  75%  73%|   -1.5% | 2 Limited
|   3      1.55    .03  |  3.67   1.54   5.82 |   1.55  |  75%  83%|   7.0%  | 3 Adequate
|   4      5.78    .04  |( 6.89)  5.82  +INF  |   5.79  |  58%  34%|  -20.6% | 4 Superior
+------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 8 Item and Threshold Difficulty

```
+------------------------------------------------------------------------+
|ENTRY   RAW                     |  INFIT   |  OUTFIT  |SCORE|         |      |
|NUMBER SCORE  COUNT  MEASURE ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|--------------------------------+----------+----------+-----+--------+------|
|    1  22291  8117    -.45A   .02| .51  -9.9| .48  -9.9| .91 |  -.02  | P1D1 0|
|    2  21878  8117    -.34A   .02| .47  -9.9| .45  -9.9| .92 |   .00  | P1D2 0|
|    3  21755  8117    -.28A   .02| .40  -9.9| .36  -9.9| .93 |   .02  | P1D3 0|
|    4  21599  8117    -.25A   .02| .42  -9.9| .40  -9.9| .93 |   .01  | P1D4 0|
|    5  21552  8117    -.23A   .02| .69  -9.9| .69  -9.9| .89 |  -.01  | P1D5 0|
|--------------------------------+----------+----------+-----+--------+------|
| MEAN  21815. 8117.    -.31   .02| .50  -9.9| .48  -9.9|     |        |      |
| S.D.    265.    1.     .08   .00| .10    .0| .12    .0|     |        |      |
+------------------------------------------------------------------------+
```

2002 PSSA Grade 6 and 9 Writing

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1

Domain ITEM DIFFICULTY MEASURE OF -.45 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 ||  NONE A |( -5.63)| 0 Unscorable
|  1    1   253    3 |-3.35 -2.27 |  .31   .26 || -3.82A  | -3.94  | 1 Minimal
|  2    2  2312   28 | -.44  -.08 |  .61   .58 || -3.14A  | -1.35  | 2 Limited
|  3    3  4794   59 | 2.80  2.45 |  .68   .65 ||  1.23A  |  3.03  | 3 Adequate
|  4    4   758    9 | 5.75  6.74 |  .46   .40 ||  5.73A  |( 6.39)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------|
|   0      NONE          |( -5.63) -INF  -4.88 |         |  0%   0% |  69.1   | 0 Unscorable
|   1     -4.27    .13   | -3.94 -4.88 -3.03   |  -4.59  | 68%  79% |   4.4%  | 1 Minimal
|   2     -3.59    .07   | -1.35 -3.03   .78   |  -3.29  | 76%  80% |  -4.2%  | 2 Limited
|   3       .78    .03   |  3.03   .78  5.31   |    .78  | 87%  86% |   9.5%  | 3 Adequate
|   4      5.28    .04   |( 6.39)  5.31 +INF   |   5.29  | 79%  67% | -25.3%  | 4 Superior
+-------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2

Domain ITEM DIFFICULTY MEASURE OF -.34 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 ||  NONE A |( -5.69)| 0 Unscorable
|  1    1   298    4 |-3.42 -2.18 |  .22   .15 || -4.04A  | -3.89  | 1 Minimal
|  2    2  2634   32 | -.20   .12 |  .54   .52 || -3.05A  | -1.08  | 2 Limited
|  3    3  4428   55 | 2.94  2.55 |  .65   .60 ||  1.50A  |  3.21  | 3 Adequate
|  4    4   757    9 | 5.76  6.71 |  .44   .42 ||  5.59A  |( 6.36)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------|
|   0      NONE          |( -5.69) -INF  -4.89 |         |  0%   0% |  69.7   | 0 Unscorable
|   1     -4.38    .13   | -3.89 -4.89 -2.91   |  -4.63  | 87%  84% |   3.5%  | 1 Minimal
|   2     -3.39    .07   | -1.08 -2.91  1.14   |  -3.15  | 85%  79% |  -2.7%  | 2 Limited
|   3      1.16    .03   |  3.21  1.14  5.30   |   1.15  | 84%  90% |   9.6%  | 3 Adequate
|   4      5.25    .04   |( 6.36)  5.30 +INF   |   5.27  | 80%  68% | -25.2%  | 4 Superior
+-------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF -.28 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 ||  NONE A |( -5.71)| 0 Unscorable
|  1    1   319    4 |-3.43 -2.18 |  .18   .12 || -4.15A  | -3.86  | 1 Minimal
|  2    2  2485   31 | -.32   .08 |  .46   .42 || -2.99A  | -1.10  | 2 Limited
|  3    3  4786   59 | 3.03  2.55 |  .58   .55 ||  1.29A  |  3.30  | 3 Adequate
|  4    4   527    6 | 6.12  8.25 |  .36   .31 ||  5.86A  |( 6.69)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|----------------------+---------------------+---------+----------+---------- |
|   0       NONE       |( -5.71) -INF   -4.90|         |  0%   0% |   70.3   | 0 Unscorable
|   1      -4.43   .13 | -3.86  -4.90  -2.85 |  -4.65  | 95%  86% |    2.8%  | 1 Minimal
|   2      -3.27   .07 | -1.10  -2.85   1.02 |  -3.06  | 87%  86% |   -3.3%  | 2 Limited
|   3       1.01   .03 |  3.30   1.02   5.61 |   1.01  | 91%  90% |   10.7%  | 3 Adequate
|   4       5.58   .05 |( 6.69)  5.61  +INF  |   5.59  | 70%  86% |  -37.5%  | 4 Superior
+----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4 P1D4

Domain ITEM DIFFICULTY MEASURE OF -.25 ADDED TO MEASURES

```
+--------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0     0    0|            |  .00   .00 || NONE  A |( -5.76)| 0 Unscorable
|   1    1   359    4| -3.33 -2.11|  .21   .14 || -4.26A  | -3.82  | 1 Minimal
|   2    2  2743   34|  -.12   .24|  .44   .41 || -2.87A  |  -.88  | 2 Limited
|   3    3  4306   53|  3.08  2.61|  .60   .56 ||  1.57A  |  3.31  | 3 Adequate
|   4    4   709    9|  5.73  6.92|  .47   .45 ||  5.55A  |( 6.41)| 4 Superior
+--------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|----------------------+---------------------+---------+----------+---------- |
|   0       NONE       |( -5.76) -INF   -4.92|         |  0%   0% |   70.1   | 0 Unscorable
|   1      -4.51   .13 | -3.82  -4.92  -2.75 |  -4.70  | 96%  77% |    2.3%  | 1 Minimal
|   2      -3.12   .06 |  -.88  -2.75   1.30 |  -2.94  | 88%  78% |   -2.1%  | 2 Limited
|   3       1.32   .03 |  3.31   1.30   5.35 |   1.31  | 82%  90% |    9.9%  | 3 Adequate
|   4       5.30   .04 |( 6.41)  5.35  +INF  |   5.32  | 70%  64% |  -27.2%  | 4 Superior
+----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5 P1D5

Domain ITEM DIFFICULTY MEASURE OF -.23 ADDED TO MEASURES

```
+--------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0     0    0|            |  .00   .00 || NONE  A |( -5.80)| 0 Unscorable
|   1    1   402    5| -2.91 -2.05|  .48   .39 || -4.35A  | -3.77  | 1 Minimal
|   2    2  2774   34|   .10   .30|  .69   .67 || -2.72A  |  -.76  | 2 Limited
|   3    3  4162   51|  3.04  2.62|  .95  1.00 ||  1.63A  |  3.31  | 3 Adequate
|   4    4   779   10|  5.18  6.53|  .73   .70 ||  5.44A  |( 6.33)| 4 Superior
+--------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|----------------------+---------------------+---------+----------+---------- |
|   0       NONE       |( -5.80) -INF   -4.93|         |  0%   0% |   70.4   | 0 Unscorable
|   1      -4.58   .13 | -3.77  -4.93  -2.64 |  -4.74  | 83%  60% |    1.9%  | 1 Minimal
|   2      -2.95   .06 |  -.76  -2.64   1.38 |  -2.81  | 78%  68% |   -2.1%  | 2 Limited
|   3       1.40   .03 |  3.31   1.38   5.27 |   1.39  | 73%  83% |    9.5%  | 3 Adequate
|   4       5.21   .04 |( 6.33)  5.27  +INF  |   5.23  | 49%  41% |  -23.5%  | 4 Superior
+----------------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 9 Item and Threshold Difficulty

```
+------------------------------------------------------------------------------+
|ENTRY   RAW                       |   INFIT  | OUTFIT |SCORE|        |         |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G |
|--------------------------------+----------+----------+-----+--------+---------|
|     1  21093   7672     .16A    .02| .45  -9.9| .45  -9.9| .92|   -.01| P1D1  0 |
|     2  20602   7672     .28A    .02| .43  -9.9| .44  -9.9| .92|    .01| P1D2  0 |
|     3  20428   7672     .35A    .02| .35  -9.9| .35  -9.9| .93|    .03| P1D3  0 |
|     4  20744   7672     .26A    .02| .40  -9.9| .41  -9.9| .93|   -.02| P1D4  0 |
|     5  20461   7672     .34A    .02| .67  -9.9| .71  -9.9| .89|    .00| P1D5  0 |
|--------------------------------+----------+----------+-----+--------+---------|
| MEAN  20666.  7672.     .28    .02| .46  -9.9| .47  -9.9|    |        |         |
| S.D.    241.     0.     .07    .00| .11   .0| .12   .0|    |        |         |
+------------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF .16 ADDED TO MEASURES
+-------------------------------------------------------------------+
|CATEGORY      OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------++---------+--------|
|   0    0      0    0|            |  .00    .00|| NONE  A |( -4.17)| 0 Unscorable
|   1    1    260    3| -2.26 -1.06|  .32    .26|| -2.69A | -2.78  | 1 Minimal
|   2    2   2230   29|  -.06   .30|  .55    .52|| -3.14A |  -.84  | 2 Limited
|   3    3   4355   57|  2.89  2.57|  .60    .60||   .84A |  3.08  | 3 Adequate
|   4    4    827   11|  5.71  6.33|  .43    .40||  4.99A |( 6.26)| 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP|
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|------------------------+--------------------+---------+----------+--------|
|   0      NONE          |( -4.17) -INF   -3.54|         |   0%   0%| 105.8  | 0 Unscorable
|   1     -2.53    .11   | -2.78  -3.54  -2.06 |  -3.15  |  66%  74%|  22.6% | 1 Minimal
|   2     -2.98    .07   |  -.84  -2.06   1.01 |  -2.39  |  78%  81%|  -2.3% | 2 Limited
|   3      1.00    .03   |  3.08   1.01   5.19 |   1.00  |  86%  87%|   9.0% | 3 Adequate
|   4      5.15    .04   |( 6.26)  5.19  +INF  |   5.17  |  83%  64%| -23.2% | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .28 ADDED TO MEASURES
+-------------------------------------------------------------------+
|CATEGORY      OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------++---------+--------|
|   0    0      0    0|            |  .00    .00|| NONE  A |( -4.20)| 0 Unscorable
|   1    1    287    4| -2.46 -1.01|  .14    .08|| -2.89A | -2.77  | 1 Minimal
|   2    2   2576   34|   .17   .48|  .50    .50|| -3.18A |  -.64  | 2 Limited
|   3    3   4073   53|  3.09  2.69|  .62    .61||  1.11A |  3.32  | 3 Adequate
|   4    4    736   10|  5.71  6.66|  .47    .46||  4.96A |( 6.35)| 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP|
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|------------------------+--------------------+---------+----------+--------|
|   0      NONE          |( -4.20) -INF   -3.56|         |   0%   0%| 106.0  | 0 Unscorable
|   1     -2.61    .11   | -2.77  -3.56  -2.02 |  -3.18  |  88%  89%|  20.9% | 1 Minimal
|   2     -2.90    .07   |  -.64  -2.02   1.37 |  -2.35  |  87%  78%|  -1.4% | 2 Limited
|   3      1.39    .03   |  3.32   1.37   5.30 |   1.38  |  82%  90%|   9.7% | 3 Adequate
|   4      5.24    .04   |( 6.35)  5.30  +INF  |   5.26  |  77%  67%| -26.6% | 4 Superior
+--------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .35 ADDED TO MEASURES
+--------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL  SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 || NONE  A |( -4.24)| 0 Unscorable
|  1    1   340    4 |-2.37 -1.00 |  .16   .10 ||  -3.10A |  -2.72 | 1 Minimal
|  2    2  2457   32 |  .11   .48 |  .42   .39 ||  -3.00A |   -.57 | 2 Limited
|  3    3  4326   56 | 3.16  2.69 |  .52   .53 ||   .95A  |  3.40  | 3 Adequate
|  4    4   549    7 | 6.09  7.79 |  .35   .33 ||  5.15A  |( 6.61) | 4 Superior
+--------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------+
|   0      NONE          |( -4.24) -INF  -3.55 |         |  0%   0% | 108.2   | 0 Unscorable
|   1     -2.75    .11   | -2.72  -3.55  -1.92 |  -3.21  | 97%  83% |  18.6%  | 1 Minimal
|   2     -2.65    .06   |  -.57  -1.92   1.31 |  -2.22  | 89%  84% |  -1.8%  | 2 Limited
|   3      1.30    .03   |  3.40   1.31   5.54 |  1.30   | 89%  91% |  10.8%  | 3 Adequate
|   4      5.50    .04   |( 6.61)  5.54  +INF  |  5.51   | 73%  85% | -36.8%  | 4 Superior
+-------------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .26 ADDED TO MEASURES
+--------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL  SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 || NONE  A |( -4.24)| 0 Unscorable
|  1    1   354    5 |-2.34 -1.01 |  .17   .10 ||  -3.03A |  -2.69 | 1 Minimal
|  2    2  2414   31 |  .12   .47 |  .41   .40 ||  -2.84A |   -.55 | 2 Limited
|  3    3  4054   53 | 3.05  2.65 |  .57   .58 ||  1.04A  |  3.20  | 3 Adequate
|  4    4   850   11 | 5.54  6.20 |  .52   .51 ||  4.84A  |( 6.22) | 4 Superior
+--------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------+
|   0      NONE          |( -4.24) -INF  -3.54 |         |  0%   0% | 109.4   | 0 Unscorable
|   1     -2.77    .11   | -2.69  -3.54  -1.89 |  -3.20  | 96%  79% |  17.9%  | 1 Minimal
|   2     -2.58    .06   |  -.55  -1.89   1.30 |  -2.17  | 84%  81% |  -2.1%  | 2 Limited
|   3      1.30    .03   |  3.20   1.30   5.16 |  1.30   | 81%  89% |   9.3%  | 3 Adequate
|   4      5.10    .04   |( 6.22)  5.16  +INF  |  5.12   | 75%  56% | -21.8%  | 4 Superior
+-------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF .34 ADDED TO MEASURES
+--------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL  SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 || NONE  A |( -4.27)| 0 Unscorable
|  1    1   387    5 |-2.07  -.98 |  .36   .30 ||  -3.18A |  -2.67 | 1 Minimal
|  2    2  2512   33 |  .41   .54 |  .73   .73 ||  -2.81A |   -.44 | 2 Limited
|  3    3  4042   53 | 3.09  2.70 |  .94  1.04 ||  1.08A  |  3.34  | 3 Adequate
|  4    4   731   10 | 5.15  6.63 |  .78   .75 ||  4.91A  |( 6.37) | 4 Superior
+--------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE    |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|------------------------+---------------------+---------+----------+---------|
|   0        NONE        ( -4.27)  -INF   -3.55|         |  0%   0% |  110.1   | 0 Unscorable
|   1       -2.84   .11  | -2.67  -3.55  -1.84 |  -3.23  | 84%  63% |  16.8%   | 1 Minimal
|   2       -2.47   .06  |  -.44  -1.84   1.42 |  -2.11  | 74%  68% |  -1.8%   | 2 Limited
|   3        1.42   .03  |  3.34   1.42   5.31 |   1.42  | 73%  80% |   9.9%   | 3 Adequate
|   4        5.25   .04  ( 6.37)   5.31  +INF  |   5.27  | 47%  41% | -26.4%   | 4 Superior
+----------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 10 Item and Threshold Difficulty

```
+------------------------------------------------------------------------------+
|ENTRY    RAW                      |   INFIT  |  OUTFIT |SCORE|        |        |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|-----------------------------------+----------+---------+-----+--------+--------|
|   1   22218   8155    -.46A   .02| .51  -9.9| .48  -9.9| .91 |   -.02 | P1D1  0
|   2   21713   8155    -.32A   .02| .49  -9.9| .46  -9.9| .92 |    .01 | P1D2  0
|   3   21540   8155    -.22A   .02| .40  -9.9| .36  -9.9| .93 |    .02 | P1D3  0
|   4   21462   8155    -.21A   .02| .43  -9.9| .40  -9.9| .93 |    .01 | P1D4  0
|   5   21693   8155    -.27A   .02| .71  -9.9| .70  -9.9| .89 |   -.01 | P1D5  0
|-----------------------------------+----------+---------+-----+--------+--------|
| MEAN  21725.  8155.    -.30   .02| .51  -9.9| .48  -9.9|     |        |
| S.D.    264.     1.     .09   .00| .11   .0 | .12   .0 |     |        |
+------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1
Domain ITEM DIFFICULTY MEASURE OF -.46 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ ||  MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------|
|  0    0     0   0 |            |  .00   .00 ||  NONE A | ( -5.87)| 0 Unscorable
|  1    1   286   4 |-3.38 -2.44 |  .43   .38 || -4.09A  | -4.09   | 1 Minimal
|  2    2  2463  30 | -.39  -.03 |  .60   .57 || -3.16A  | -1.29   | 2 Limited
|  3    3  4618  57 | 2.92  2.58 |  .66   .61 ||  1.43A  |  3.17   | 3 Adequate
|  4    4   788  10 | 5.89  6.68 |  .44   .39 ||  5.83A  | ( 6.48) | 4 Superior
+------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE    |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|------------------------+---------------------+---------+----------+---------|
|   0        NONE        ( -5.87)  -INF   -5.08|         |  0%   0% |   70.3   | 0 Unscorable
|   1       -4.55   .13  | -4.09  -5.08  -3.13 |  -4.81  | 81%  74% |   5.6%   | 1 Minimal
|   2       -3.62   .07  | -1.29  -3.13   .96  |  -3.37  | 78%  83% |  -3.5%   | 2 Limited
|   3         .97   .03  |  3.17    .96   5.40 |    .97  | 86%  87% |   8.9%   | 3 Adequate
|   4        5.37   .04  ( 6.48)   5.40  +INF  |   5.38  | 84%  66% | -22.7%   | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P1D2
Domain ITEM DIFFICULTY MEASURE OF -.32 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ ||  MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------|
|  0    0     0   0 |            |  .00   .00 ||  NONE A | ( -5.93)| 0 Unscorable
|  1    1   335   4 |-3.55 -2.35 |  .22   .15 || -4.34A  | -4.04   | 1 Minimal
|  2    2  2786  34 | -.12   .18 |  .54   .52 || -3.09A  | -1.01   | 2 Limited
|  3    3  4330  53 | 3.12  2.70 |  .68   .62 ||  1.66A  |  3.40   | 3 Adequate
|  4    4   704   9 | 5.87  7.06 |  .48   .45 ||  5.77A  | ( 6.56) | 4 Superior
+------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0      NONE        |( -5.93) -INF  -5.10 |         |  0%   0% |  70.8   | 0 Unscorable
|   1     -4.66   .13  | -4.04  -5.10  -3.00 | -4.87   | 82%  87% |   4.8%  | 1 Minimal
|   2     -3.41   .07  | -1.01  -3.00   1.32 | -3.21   | 86%  78% |  -2.0%  | 2 Limited
|   3      1.34   .03  |  3.40   1.32   5.50 |  1.33   | 83%  89% |   9.2%  | 3 Adequate
|   4      5.45   .04  |( 6.56)  5.50  +INF  |  5.47   | 75%  66% | -26.4%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3 P1D3
Domain ITEM DIFFICULTY MEASURE OF -.22 ADDED TO MEASURES

```
+--------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE A  |( -5.99)| 0 Unscorable
|  1    1    403   5| -3.46 -2.28|  .20   .14 || -4.55A  | -3.94  | 1 Minimal
|  2    2   2619  32|  -.18   .19|  .45   .41 || -2.88A  |  -.92  | 2 Limited
|  3    3   4633  57|  3.19  2.70|  .58   .54 ||  1.45A  |  3.50  | 3 Adequate
|  4    4    500   6|  6.29  8.47|  .35   .30 ||  5.99A  |( 6.88) | 4 Superior
+--------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0      NONE        |( -5.99) -INF  -5.11 |         |  0%   0% |  72.7   | 0 Unscorable
|   1     -4.77   .13  | -3.94  -5.11  -2.80 | -4.92   | 96%  85% |   3.7%  | 1 Minimal
|   2     -3.10   .06  |  -.92  -2.80   1.24 | -2.96   | 88%  84% |  -2.9%  | 2 Limited
|   3      1.23   .03  |  3.50   1.24   5.80 |  1.23   | 90%  91% |  10.4%  | 3 Adequate
|   4      5.77   .05  |( 6.88)  5.80  +INF  |  5.78   | 71%  88% | -37.3%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4 P1D4
Domain ITEM DIFFICULTY MEASURE OF -.21 ADDED TO MEASURES

```
+--------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE A  |( -6.04)| 0 Unscorable
|  1    1    447   5| -3.37 -2.22|  .22   .15 || -4.63A  | -3.89  | 1 Minimal
|  2    2   2757  34|  -.04   .29|  .44   .41 || -2.73A  |  -.75  | 2 Limited
|  3    3   4303  53|  3.22  2.73|  .60   .56 ||  1.62A  |  3.47  | 3 Adequate
|  4    4    648   8|  5.92  7.30|  .49   .46 ||  5.74A  |( 6.64) | 4 Superior
+--------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------|
|   0      NONE        |( -6.04) -INF  -5.13 |         |  0%   0% |  72.4   | 0 Unscorable
|   1     -4.84   .13  | -3.89  -5.13  -2.69 | -4.96   | 96%  76% |   3.2%  | 1 Minimal
|   2     -2.94   .06  |  -.75  -2.69   1.40 | -2.83   | 87%  79% |  -1.9%  | 2 Limited
|   3      1.41   .03  |  3.47   1.40   5.58 |  1.41   | 83%  90% |   9.5%  | 3 Adequate
|   4      5.53   .04  |( 6.64)  5.58  +INF  |  5.55   | 67%  64% | -28.7%  | 4 Superior
+----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF -.27 ADDED TO MEASURES
+---------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+-----------++---------+-------+
|   0    0      0    0|            |  .00   .00 || NONE  A ( -6.04)| 0 Unscorable
|   1    1    450    6|-3.11 -2.22| .43   .36 || -4.57A| -3.89 | 1 Minimal
|   2    2   2649   32| .10   .25 | .74   .72 || -2.65A|  -.79 | 2 Limited
|   3    3   4279   52| 3.06  2.69| .97  1.00 ||  1.59A|  3.34 | 3 Adequate
|   4    4    777   10| 5.34  6.64| .73   .69 ||  5.63A( 6.47)| 4 Superior
+---------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+-------------------+---------+----------+---------+
|   0     NONE          |( -6.04) -INF   -5.13|         |  0%   0%|   72.5  | 0 Unscorable
|   1    -4.84    .13   | -3.89  -5.13  -2.68| -4.96  | 85%  68%|   3.4%  | 1 Minimal
|   2    -2.92    .06   |  -.79  -2.68   1.31| -2.81  | 75%  71%|  -2.5%  | 2 Limited
|   3     1.32    .03   |  3.34   1.31   5.41|  1.32  | 74%  81%|   9.0%  | 3 Adequate
|   4     5.36    .04   |( 6.47)  5.41  +INF |  5.38  | 50%  40%| -22.6%  | 4 Superior
+---------------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 11 Item and Threshold Difficulty

```
+-----------------------------------------------------------------------------+
|ENTRY   RAW                    |    INFIT  | OUTFIT  |SCORE|          |        |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR.|DISPLACE| Domai G|
|-------------------------------+---------+---------+-----+--------+--------+
|     1  22785   8405   -.19A    .02| .49 -9.9| .43 -9.9| .90 |  -.04  | P1D1  0|
|     2  21726   8405    .12A    .02| .53 -9.9| .47 -9.9| .91 |   .02  | P1D2  0|
|     3  21379   8405    .29A    .02| .46 -9.9| .40 -9.9| .91 |   .04  | P1D3  0|
|     4  21782   8405    .16A    .02| .44 -9.9| .38 -9.9| .92 |   .01  | P1D4  0|
|     5  22457   8405   -.07A    .02| .69 -9.9| .65 -9.9| .88 |  -.03  | P1D5  0|
|-------------------------------+---------+---------+-----+--------+--------+
| MEAN  22026.   8405.    .06    .02| .52 -9.9| .47 -9.9|     |        |        |
| S.D.    516.      1.    .17    .00| .09   .0| .10   .0|     |        |        |
+-----------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.19 ADDED TO MEASURES
+---------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+-----------++---------+-------+
|   0    0      0    0|            |  .00   .00 || NONE  A ( -5.85)| 0 Unscorable
|   1    1    208    2|-3.68 -2.51| .23   .18 || -4.29A| -4.17 | 1 Minimal
|   2    2   2646   31| -.26   .12| .58   .53 || -3.67A| -1.26 | 2 Limited
|   3    3   4919   59| 3.46  3.12| .65   .56 ||  1.45A|  3.79 | 3 Adequate
|   4    4    632    8| 6.79  7.83| .45   .34 ||  6.51A( 7.42)| 4 Superior
+---------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+-------------------+---------+----------+---------+
|   0     NONE          |( -5.85) -INF   -5.10|         |  0%   0%|   59.7  | 0 Unscorable
|   1    -4.48    .14   | -4.17  -5.10  -3.26| -4.81  | 80%  83%|   1.3%  | 1 Minimal
|   2    -3.86    .08   | -1.26  -3.26   1.26| -3.54  | 90%  80%|  -3.6%  | 2 Limited
|   3     1.26    .03   |  3.79   1.26   6.34|  1.26  | 86%  94%|   7.9%  | 3 Adequate
|   4     6.32    .05   |( 7.42)  6.34  +INF |  6.33  | 84%  61%| -24.5%  | 4 Superior
+---------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .12 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0   0      0   0 |            |   .00   .00|| NONE   A|( -5.98)| 0 Unscorable
|   1   1    309   4 | -3.48 -2.31|   .27   .16||  -4.85A|  -4.03 | 1 Minimal
|   2   2   3416  41 |   .35   .56|   .60   .57||  -3.44A|   -.60 | 2 Limited
|   3   3   4135  49 |  3.84  3.44|   .70   .61||  1.98A |   4.27 | 3 Adequate
|   4   4    545   6 |  6.82  8.22|   .46   .41||  6.31A |( 7.54)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------+---------------------+---------+---------+---------+
|   0      NONE            |( -5.98) -INF   -5.13|         |  0%   0% |  62.2   | 0 Unscorable
|   1     -4.73    .14     |  -4.03  -5.13  -2.94|  -4.91  | 81%  82% |   -.6%  | 1 Minimal
|   2     -3.32    .07     |   -.60  -2.94   2.08|  -3.14  | 88%  77% |    .3%  | 2 Limited
|   3      2.10    .03     |   4.27   2.08   6.47|   2.09  | 80%  90% |   6.8%  | 3 Adequate
|   4      6.43    .05     |( 7.54)   6.47  +INF |   6.44  | 76%  64% | -27.8%  | 4 Superior
+------------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .29 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0   0      0   0 |            |   .00   .00|| NONE   A|( -6.07)| 0 Unscorable
|   1   1    382   5 | -3.42 -2.19|   .22   .12||  -5.16A|  -3.94 | 1 Minimal
|   2   2   3381  40 |   .38   .62|   .52   .46||  -3.29A|   -.43 | 2 Limited
|   3   3   4333  52 |  4.01  3.50|   .64   .57||  1.82A |   4.51 | 3 Adequate
|   4   4    309   4 |  7.20 10.98|   .42   .35||  6.62A |( 8.01)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------+---------------------+---------+---------+---------+
|   0      NONE            |( -6.07) -INF   -5.17|         |  0%   0% |  62.5   | 0 Unscorable
|   1     -4.87    .14     |  -3.94  -5.17  -2.72|  -5.00  | 98%  81% |   -.7%  | 1 Minimal
|   2     -3.00    .06     |   -.43  -2.72   2.10|  -2.88  | 91%  81% |    .3%  | 2 Limited
|   3      2.11    .03     |   4.51   2.10   6.93|   2.11  | 83%  94% |   7.7%  | 3 Adequate
|   4      6.91    .05     |( 8.01)   6.93  +INF |   6.92  | 69%  50% | -45.2%  | 4 Superior
+------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF .16 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0   0      0   0 |            |   .00   .00|| NONE   A|( -6.07)| 0 Unscorable
|   1   1    384   5 | -3.42 -2.19|   .21   .11||  -5.03A|  -3.92 | 1 Minimal
|   2   2   3148  37 |   .24   .53|   .47   .41||  -3.13A|   -.52 | 2 Limited
|   3   3   4390  52 |  3.85  3.39|   .61   .54||  1.75A |   4.24 | 3 Adequate
|   4   4    483   6 |  6.89  8.68|   .48   .41||  6.40A |( 7.67)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+--------------------------------------------------------------------+
|CATEGORY    STRUCTURE  | SCORE-TO-MEASURE  | 50% CUM. | COHERENCE| OBS-EXP  |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|----------------------+---------------------+---------+----------+--------- |
|    0     NONE        |( -6.07) -INF   -5.16|         |  0%   0% |  62.4    | 0 Unscorable
|    1    -4.87   .14  | -3.92  -5.16  -2.70 |  -4.99  | 95%  78% |   -.8%   | 1 Minimal
|    2    -2.97   .06  |  -.52  -2.70   1.90 |  -2.85  | 88%  83% |   -.6%   | 2 Limited
|    3     1.91   .03  |  4.24   1.90   6.59 |   1.91  | 85%  90% |   7.5%   | 3 Adequate
|    4     6.56   .05  |( 7.67)  6.59  +INF  |   6.57  | 68%  65% |  -31.5%  | 4 Superior
+--------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5 P1D5

Domain ITEM DIFFICULTY MEASURE OF -.07 ADDED TO MEASURES

```
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+-----------++---------+--------+
|   0   0      0   0 |            |  .00   .00 || NONE  A |( -6.04)| 0 Unscorable
|   1   1    351   4 | -3.26 -2.24|  .35   .26 || -4.75A  | -3.96  | 1 Minimal
|   2   2   2827  34 |  .19   .35 |  .74   .71 || -3.03A  |  -.74  | 2 Limited
|   3   3   4456  53 | 3.52  3.21 |  .90   .88 ||  1.65A  |  3.82  | 3 Adequate
|   4   4    771   9 | 6.15  7.16 |  .71   .62 ||  6.13A  |( 7.17)| 4 Superior
+----------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------+
|CATEGORY    STRUCTURE  | SCORE-TO-MEASURE  | 50% CUM. | COHERENCE| OBS-EXP  |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|----------------------+---------------------+---------+----------+--------- |
|    0     NONE        |( -6.04) -INF   -5.15|         |  0%   0% |  61.3    | 0 Unscorable
|    1    -4.82   .14  | -3.96  -5.15  -2.80 |  -4.96  | 83%  74% |   .7%    | 1 Minimal
|    2    -3.10   .07  |  -.74  -2.80   1.57 |  -2.96  | 75%  79% |  -2.0%   | 2 Limited
|    3     1.58   .03  |  3.82   1.57   6.09 |   1.58  | 81%  78% |   7.2%   | 3 Adequate
|    4     6.06   .04  |( 7.17)  6.09  +INF  |   6.07  | 59%  59% |  -19.3%  | 4 Superior
+--------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 12 Item and Threshold Difficulty

```
+------------------------------------------------------------------------+
|ENTRY   RAW                    |  INFIT  | OUTFIT |SCORE|         |        |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|-------------------------------+----------+----------+-----+--------+--------+
|    1   22858   8470    .11A    .02| .49  -9.9| .43  -9.9| .90 |  -.05  | P1D1 0|
|    2   21587   8470    .48A    .02| .51  -9.9| .44  -9.9| .91 |   .02  | P1D2 0|
|    3   21490   8470    .59A    .02| .44  -9.9| .38  -9.9| .91 |   .02  | P1D3 0|
|    4   21521   8470    .56A    .02| .42  -9.9| .36  -9.9| .92 |   .03  | P1D4 0|
|    5   22442   8470    .23A    .02| .65  -9.9| .61  -9.9| .88 |  -.03  | P1D5 0|
|-------------------------------+----------+----------+-----+--------+--------+
| MEAN  21980.   8470.    .39    .02| .50  -9.9| .44  -9.9|     |        |        |
| S.D.    564.      0.    .19    .00| .08    .0| .09    .0|     |        |        |
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1
Domain ITEM DIFFICULTY MEASURE OF .11 ADDED TO MEASURES

```
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+-----------++---------+--------+
|   0   0      0   0 |            |  .00   .00 || NONE  A |( -5.30)| 0 Unscorable
|   1   1    212   3 | -3.20 -2.00|  .27   .20 || -3.94A  | -3.74  | 1 Minimal
|   2   2   2721  32 |  -.16   .20 |  .59   .54 || -3.75A  | -1.09  | 2 Limited
|   3   3   4944  58 | 3.60  3.29 |  .62   .55 ||  1.24A  |  3.96  | 3 Adequate
|   4   4    593   7 | 7.04  7.94 |  .44   .33 ||  6.45A  |( 7.66)| 4 Superior
+----------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -5.30) -INF  -4.60 |         |   0%   0%|   69.9  | 0 Unscorable
|   1      -3.83    .13 | -3.74 -4.60  -2.90  | -4.26   |  72%  78%|   5.0%  | 1 Minimal
|   2      -3.64    .08 | -1.09 -2.90   1.35  | -3.22   |  88%  82%|  -2.9%  | 2 Limited
|   3       1.35    .03 |  3.96  1.35   6.58  |  1.35   |  87%  94%|   7.2%  | 3 Adequate
|   4       6.56    .05 |( 7.66) 6.58  +INF   |  6.57   |  87%  56%| -24.1%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .48 ADDED TO MEASURES

```
+---------------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ || MEASURE | MEASURE|
|-------------------+------------+-------------++---------+--------+
|  0    0      0   0 |            | .00    .00 || NONE  A |( -5.44)| 0 Unscorable
|  1    1    341   4 |-3.07 -1.81 | .24    .13 ||  -4.63A |  -3.59 | 1 Minimal
|  2    2   3597  42 |  .53   .70 | .62    .57 ||  -3.50A |   -.34 | 2 Limited
|  3    3   4076  48 | 4.05  3.70 | .68    .59 ||   1.82A |   4.55 | 3 Adequate
|  4    4    456   5 | 7.22  8.68 | .42    .36 ||   6.31A |( 7.90) | 4 Superior
+---------------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -5.44) -INF  -4.62 |         |   0%   0%|   73.5  | 0 Unscorable
|   1      -4.15    .13 | -3.59 -4.62  -2.56  | -4.38   |  85%  78%|   1.8%  | 1 Minimal
|   2      -3.02    .06 |  -.34 -2.56   2.28  | -2.80   |  88%  77%|   1.5%  | 2 Limited
|   3       2.30    .03 |  4.55  2.28   6.82  |  2.29   |  80%  91%|   5.4%  | 3 Adequate
|   4       6.79    .05 |( 7.90) 6.82  +INF   |  6.80   |  79%  66%| -30.1%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .59 ADDED TO MEASURES

```
+---------------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ || MEASURE | MEASURE|
|-------------------+------------+-------------++---------+--------+
|  0    0      0   0 |            | .00    .00 || NONE  A |( -5.51)| 0 Unscorable
|  1    1    399   5 |-3.02 -1.77 | .22    .12 ||  -4.86A |  -3.52 | 1 Minimal
|  2    2   3383  40 |  .43   .67 | .51    .44 ||  -3.36A |   -.30 | 2 Limited
|  3    3   4427  52 | 4.15  3.69 | .62    .56 ||   1.55A |   4.70 | 3 Adequate
|  4    4    261   3 | 7.52 11.51 | .42    .32 ||   6.67A |( 8.36) | 4 Superior
+---------------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -5.51) -INF  -4.65 |         |   0%   0%|   73.6  | 0 Unscorable
|   1      -4.27    .13 | -3.52 -4.65  -2.42  | -4.44   |  98%  77%|    .6%  | 1 Minimal
|   2      -2.77    .06 |  -.30 -2.42   2.14  | -2.61   |  90%  83%|    .8%  | 2 Limited
|   3       2.14    .03 |  4.70  2.14   7.28  |  2.14   |  85%  93%|   6.5%  | 3 Adequate
|   4       7.26    .06 |( 8.36) 7.28  +INF   |  7.27   |  67%  47%| -46.8%  | 4 Superior
+---------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .56 ADDED TO MEASURES
+-------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0   0 |            |  .00   .00 || NONE  A |( -5.48)| 0 Unscorable
|  1    1    378   4 |-3.06 -1.78 |  .21   .11 ||  -4.79A |  -3.55 | 1 Minimal
|  2    2   3436  41 |  .41   .67 |  .48   .40 ||  -3.42A |   -.33 | 2 Limited
|  3    3   4353  51 | 4.16  3.69 |  .59   .52 ||   1.61A |   4.66 | 3 Adequate
|  4    4    303   4 | 7.40 10.62 |  .46   .37 ||   6.59A |(  8.25)| 4 Superior
+-------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.|COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE---- |PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+---------|
|   0     NONE          |( -5.48) -INF  -4.64|         |  0%   0%|  73.5   | 0 Unscorable
|   1    -4.23   .13    | -3.55 -4.64  -2.47 |  -4.42  | 95%  79%|   1.3%  | 1 Minimal
|   2    -2.86   .06    |  -.33 -2.47   2.17 |  -2.68  | 91%  83%|   1.1%  | 2 Limited
|   3     2.17   .03    |  4.66  2.17   7.17 |   2.17  | 86%  91%|   6.2%  | 3 Adequate
|   4     7.15   .06    |( 8.25) 7.17  +INF  |   7.16  | 55%  70%| -42.4%  | 4 Superior
+------------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF .23 ADDED TO MEASURES
+-------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0   0 |            |  .00   .00 || NONE  A |( -5.45)| 0 Unscorable
|  1    1    344   4 |-2.92 -1.83 |  .33   .23 ||  -4.40A |  -3.57 | 1 Minimal
|  2    2   2990  35 |  .28   .44 |  .71   .68 ||  -3.20A |   -.59 | 2 Limited
|  3    3   4426  52 | 3.70  3.41 |  .86   .83 ||   1.51A |   4.03 | 3 Adequate
|  4    4    710   8 | 6.44  7.35 |  .67   .57 ||   6.09A |(  7.43)| 4 Superior
+-------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.|COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE---- |PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+---------|
|   0     NONE          |( -5.45) -INF  -4.62|         |  0%   0%|  72.1   | 0 Unscorable
|   1    -4.17   .13    | -3.57 -4.62  -2.55 |  -4.39  | 79%  73%|   2.6%  | 1 Minimal
|   2    -2.97   .06    |  -.59 -2.55   1.74 |  -2.76  | 77%  81%|   -.8%  | 2 Limited
|   3     1.74   .03    |  4.03  1.74   6.35 |   1.74  | 81%  80%|   6.2%  | 3 Adequate
|   4     6.32   .04    |( 7.43) 6.35  +INF  |   6.33  | 62%  55%| -19.5%  | 4 Superior
+------------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 13 Item and Threshold Difficulty

```
+----------------------------------------------------------------------------+
|ENTRY   RAW                    |  INFIT   | OUTFIT  |SCORE|         |        |
|NUMBER  SCORE  COUNT  MEASURE ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR.|DISPLACE| Domai G|
|-------------------------------+---------+---------+-----+--------+--------|
|   1   23364   8654    -.05A   .02| .49 -9.9| .43 -9.9| .90 |   -.05 | P1D1  0
|   2   21886   8654     .38A   .02| .53 -9.9| .47 -9.9| .90 |    .03 | P1D2  0
|   3   21797   8654     .49A   .02| .45 -9.9| .38 -9.9| .91 |    .03 | P1D3  0
|   4   21928   8654     .44A   .02| .45 -9.9| .38 -9.9| .91 |    .01 | P1D4  0
|   5   22826   8654     .11A   .02| .68 -9.9| .64 -9.9| .88 |   -.03 | P1D5  0
|-------------------------------+---------+---------+-----+--------+--------|
| MEAN  22360.  8654.    .27    .02| .52 -9.9| .46 -9.9|     |        |        |
| S.D.    625.     0.    .21    .00| .08  .0| .10  .0 |     |        |        |
+----------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.05 ADDED TO MEASURES
```

CATEGORY LABEL	SCORE	OBSERVED COUNT	%	OBSVD AVRGE	SAMPLE EXPECT	INFIT MNSQ	OUTFIT MNSQ	STRUCTURE MEASURE	CATEGORY MEASURE		
0	0	0	0			.00	.00	NONE A	(-5.68)	0	Unscorable
1	1	246	3	-3.39	-2.38	.32	.25	-4.27A	-3.99	1	Minimal
2	2	2745	32	-.24	.13	.57	.52	-3.59A	-1.15	2	Limited
3	3	5024	58	3.54	3.23	.61	.54	1.32A	3.89	3	Adequate
4	4	639	7	6.95	7.75	.47	.36	6.55A	(7.60)	4	Superior

```
AVERAGE MEASURE is mean of measures in category.
```

CATEGORY LABEL	STRUCTURE MEASURE	S.E.	SCORE-TO-MEASURE AT CAT.	----ZONE----		50% CUM. PROBABLTY	COHERENCE M->C	C->M	OBS-EXP RESIDUAL		
0	NONE		(-5.68)	-INF	-4.93		0%	0%	69.0	0	Unscorable
1	-4.32	.13	-3.99	-4.93	-3.06	-4.63	75%	79%	1.1%	1	Minimal
2	-3.64	.07	-1.15	-3.06	1.28	-3.33	87%	82%	-2.6%	2	Limited
3	1.27	.03	3.89	1.28	6.52	1.27	86%	93%	6.8%	3	Adequate
4	6.50	.05	(7.60)	6.52	+INF	6.50	90%	53%	-22.2%	4	Superior

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2

Domain ITEM DIFFICULTY MEASURE OF .38 ADDED TO MEASURES
```

CATEGORY LABEL	SCORE	OBSERVED COUNT	%	OBSVD AVRGE	SAMPLE EXPECT	INFIT MNSQ	OUTFIT MNSQ	STRUCTURE MEASURE	CATEGORY MEASURE		
0	0	0	0			.00	.00	NONE A	(-5.85)	0	Unscorable
1	1	380	4	-3.30	-2.14	.25	.14	-5.00A	-3.85	1	Minimal
2	2	3733	43	.52	.67	.63	.57	-3.45A	-.37	2	Limited
3	3	4124	48	4.09	3.72	.70	.61	1.92A	4.61	3	Adequate
4	4	417	5	7.17	9.03	.48	.42	6.53A	(8.02)	4	Superior

```
AVERAGE MEASURE is mean of measures in category.
```

CATEGORY LABEL	STRUCTURE MEASURE	S.E.	SCORE-TO-MEASURE AT CAT.	----ZONE----		50% CUM. PROBABLTY	COHERENCE M->C	C->M	OBS-EXP RESIDUAL		
0	NONE		(-5.85)	-INF	-4.99		0%	0%	70.4	0	Unscorable
1	-4.62	.13	-3.85	-4.99	-2.72	-4.79	83%	83%	.1%	1	Minimal
2	-3.07	.06	-.37	-2.72	2.28	-2.91	89%	76%	2.2%	2	Limited
3	2.30	.03	4.61	2.28	6.94	2.30	79%	90%	4.8%	3	Adequate
4	6.91	.05	(8.02)	6.94	+INF	6.92	72%	66%	-32.0%	4	Superior

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .49 ADDED TO MEASURES
```

CATEGORY LABEL	SCORE	OBSERVED COUNT	%	OBSVD AVRGE	SAMPLE EXPECT	INFIT MNSQ	OUTFIT MNSQ	STRUCTURE MEASURE	CATEGORY MEASURE		
0	0	0	0			.00	.00	NONE A	(-5.93)	0	Unscorable
1	1	456	5	-3.21	-2.05	.23	.14	-5.23A	-3.76	1	Minimal
2	2	3524	41	.45	.66	.52	.45	-3.26A	-.29	2	Limited
3	3	4403	51	4.16	3.71	.60	.54	1.68A	4.73	3	Adequate
4	4	271	3	7.51	11.07	.43	.34	6.80A	(8.39)	4	Superior

```
AVERAGE MEASURE is mean of measures in category.
```

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+--------+---------+---------|
|   0      NONE         ( -5.93) -INF  -5.02|         |  0%   0%|  70.9  | 0 Unscorable
|   1     -4.74   .13   | -3.76 -5.02  -2.52| -4.86   | 97%  80%|  -.6%  | 1 Minimal
|   2     -2.77   .06   |  -.29 -2.52   2.17| -2.66   | 91%  82%|  1.5%  | 2 Limited
|   3      2.17   .03   |  4.73  2.17   7.31|  2.17   | 84%  94%|  5.6%  | 3 Adequate
|   4      7.29   .06   ( 8.39)  7.31  +INF |  7.30   | 72%  45%| -44.2% | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4 P1D4

Domain ITEM DIFFICULTY MEASURE OF .44 ADDED TO MEASURES

```
+-------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+-----------+----------+--------+
|   0    0      0   0|            |  .00   .00|| NONE  A |( -5.93)| 0 Unscorable
|   1    1    460   5| -3.20 -2.05|  .22   .13|| -5.18A |  -3.75 | 1 Minimal
|   2    2   3450  40|   .40   .64|  .49   .42|| -3.19A |   -.30 | 2 Limited
|   3    3   4408  51|  4.11  3.67|  .61   .55||  1.68A |   4.63 | 3 Adequate
|   4    4    336   4|  7.24  9.89|  .52   .43||  6.69A |( 8.23)| 4 Superior
+-------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+--------+---------+---------|
|   0      NONE         ( -5.93) -INF  -5.01|         |  0%   0%|  71.1  | 0 Unscorable
|   1     -4.74   .13   | -3.75 -5.01  -2.50| -4.85   | 96%  78%|  -.5%  | 1 Minimal
|   2     -2.75   .06   |  -.30 -2.50   2.12| -2.64   | 89%  83%|  1.0%  | 2 Limited
|   3      2.12   .03   |  4.63  2.12   7.15|  2.12   | 85%  90%|  5.8%  | 3 Adequate
|   4      7.13   .05   ( 8.23)  7.15  +INF |  7.14   | 57%  64%| -37.6% | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5 P1D5

Domain ITEM DIFFICULTY MEASURE OF .11 ADDED TO MEASURES

```
+-------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+-----------+----------+--------+
|   0    0      0   0|            |  .00   .00|| NONE  A |( -5.89)| 0 Unscorable
|   1    1    413   5| -3.05 -2.11|  .38   .28|| -4.79A |  -3.79 | 1 Minimal
|   2    2   3045  35|   .29   .42|  .76   .74|| -3.00A |   -.57 | 2 Limited
|   3    3   4461  52|  3.66  3.38|  .87   .85||  1.61A |   4.01 | 3 Adequate
|   4    4    735   8|  6.39  7.32|  .68   .58||  6.18A |( 7.40)| 4 Superior
+-------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+--------+---------+---------|
|   0      NONE         ( -5.89) -INF  -4.99|         |  0%   0%|  69.7  | 0 Unscorable
|   1     -4.68   .13   | -3.79 -4.99  -2.61| -4.82   | 79%  72%|   .2%  | 1 Minimal
|   2     -2.89   .06   |  -.57 -2.61   1.72| -2.76   | 75%  79%|  -.5%  | 2 Limited
|   3      1.72   .03   |  4.01  1.72   6.32|  1.72   | 80%  79%|  6.1%  | 3 Adequate
|   4      6.29   .04   ( 7.40)  6.32  +INF |  6.30   | 63%  56%| -19.0% | 4 Superior
+----------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 14 Item and Threshold Difficulty

```
+-----------------------------------------------------------------------+
|ENTRY   RAW               |      INFIT |     OUTFIT |SCORE|        |       |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ   ZSTD|MNSQ   ZSTD|CORR.|DISPLACE| Domai G|
|------------------------------+-----------+-----------+-----+--------+--------|
|     1  21667   8182     .39A    .02| .52  -9.9| .47  -9.9| .90|   -.03| P1D1  0|
|     2  20691   8182     .67A    .02| .47  -9.9| .43  -9.9| .91|    .02| P1D2  0|
|     3  20664   8182     .74A    .02| .42  -9.9| .37  -9.9| .92|    .03| P1D3  0|
|     4  20780   8182     .70A    .02| .41  -9.9| .36  -9.9| .92|    .01| P1D4  0|
|     5  21758   8182     .36A    .02| .62  -9.9| .60  -9.9| .89|   -.03| P1D5  0|
|------------------------------+-----------+-----------+-----+--------+--------|
| MEAN   21112.  8182.     .57    .02| .49  -9.9| .45  -9.9|    |       |       |
| S.D.     493.     2.     .16    .00| .07   .0| .09   .0|    |       |       |
+-----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF .39 ADDED TO MEASURES
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+-----------++---------+--------|
|   0    0      0   0|           |  .00   .00|| NONE  A |( -4.91)| 0 Unscorable
|   1    1    302   4|-2.77 -1.52| .31   .23||  -3.87A |  -3.31 | 1 Minimal
|   2    2   2822  34|  .17   .42| .66   .63||  -3.52A |   -.69 | 2 Limited
|   3    3   4511  55| 3.69  3.40| .65   .59||   1.24A |   4.09 | 3 Adequate
|   4    4    547   7| 6.93  7.92| .46   .36||   6.15A |( 7.64)| 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.
```

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+--------------------+---------+----------+--------|
|   0      NONE        |( -4.91) -INF  -4.19|        |   0%   0%|  91.1 | 0 Unscorable
|   1     -3.48    .12 | -3.31 -4.19  -2.45|  -3.87 |  65%  80%|  13.6% | 1 Minimal
|   2     -3.13    .07 |  -.69 -2.45   1.63|  -2.75 |  77%  83%|  -1.3% | 2 Limited
|   3      1.63    .03 |  4.09  1.63   6.56|   1.63 |  86%  85%|   6.7% | 3 Adequate
|   4      6.54    .05 |( 7.64) 6.56  +INF|   6.55 |  84%  54%| -25.7% | 4 Superior
+-----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .67 ADDED TO MEASURES
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+-----------++---------+--------|
|   0    0      0   0|           |  .00   .00|| NONE  A |( -4.99)| 0 Unscorable
|   1    1    391   5|-2.79 -1.41| .22   .12||  -4.33A |  -3.23 | 1 Minimal
|   2    2   3487  43|  .62   .79| .57   .54||  -3.47A |   -.19 | 2 Limited
|   3    3   3890  48| 4.10  3.72| .64   .58||   1.69A |   4.57 | 3 Adequate
|   4    4    414   5| 7.10  8.77| .44   .39||   6.11A |( 7.89)| 4 Superior
+-------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.
```

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+--------------------+---------+----------+--------|
|   0      NONE        |( -4.99) -INF  -4.21|        |   0%   0%|  93.6 | 0 Unscorable
|   1     -3.66    .12 | -3.23 -4.21  -2.27|  -3.94 |  88%  83%|  11.0% | 1 Minimal
|   2     -2.80    .06 |  -.19 -2.27   2.34|  -2.53 |  90%  78%|   1.5% | 2 Limited
|   3      2.36    .03 |  4.57  2.34   6.81|   2.35 |  80%  92%|   5.5% | 3 Adequate
|   4      6.78    .05 |( 7.89) 6.81  +INF|   6.79 |  76%  65%| -32.5% | 4 Superior
+-----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .74 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------+
|   0   0     0    0|            |  .00   .00 ||  NONE  A|( -5.04)| 0 Unscorable
|   1   1   439    5| -2.74 -1.39|  .21   .12 || -4.49A | -3.18  | 1 Minimal
|   2   2  3271   40|   .52   .74|  .50   .44 || -3.35A |  -.19  | 2 Limited
|   3   3  4205   51|  4.15  3.69|  .59   .54 ||  1.44A |  4.67  | 3 Adequate
|   4   4   267    3|  7.40 10.89|  .42   .34 ||  6.41A |( 8.25)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------|
|   0      NONE          |( -5.04) -INF  -4.22 |         |  0%   0% |  94.2   | 0 Unscorable
|   1     -3.75    .12   | -3.18  -4.22  -2.17 |  -3.98  | 96%  80% |  9.9%   | 1 Minimal
|   2     -2.61    .06   |  -.19  -2.17   2.18 |  -2.39  | 90%  83% |   .9%   | 2 Limited
|   3      2.18    .03   |  4.67   2.18   7.17 |   2.18  | 85%  94% |  6.3%   | 3 Adequate
|   4      7.15    .06   |( 8.25)  7.17  +INF  |   7.16  | 73%  45% | -45.5%  | 4 Superior
+----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .70 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------+
|   0   0     0    0|            |  .00   .00 ||  NONE  A|( -5.04)| 0 Unscorable
|   1   1   449    5| -2.71 -1.39|  .22   .13 || -4.46A | -3.16  | 1 Minimal
|   2   2  3201   39|   .47   .72|  .47   .41 || -3.26A |  -.19  | 2 Limited
|   3   3  4199   51|  4.11  3.66|  .57   .52 ||  1.43A |  4.56  | 3 Adequate
|   4   4   333    4|  7.17  9.69|  .49   .40 ||  6.29A |( 8.09)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------|
|   0      NONE          |( -5.04) -INF  -4.21 |         |  0%   0% |  94.9   | 0 Unscorable
|   1     -3.76    .12   | -3.16  -4.21  -2.14 |  -3.98  | 94%  77% |  9.3%   | 1 Minimal
|   2     -2.56    .06   |  -.19  -2.14   2.13 |  -2.35  | 89%  84% |   .6%   | 2 Limited
|   3      2.13    .03   |  4.56   2.13   7.01 |   2.13  | 86%  91% |  6.3%   | 3 Adequate
|   4      6.99    .05   |( 8.09)  7.01  +INF  |   7.00  | 59%  63% | -38.8%  | 4 Superior
+----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5

Domain ITEM DIFFICULTY MEASURE OF .36 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY   OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------+
|   0   0     0    0|            |  .00   .00 ||  NONE  A|( -5.00)| 0 Unscorable
|   1   1   401    5| -2.62 -1.45|  .31   .23 || -4.05A | -3.20  | 1 Minimal
|   2   2  2704   33|   .30   .46|  .69   .68 || -3.06A |  -.51  | 2 Limited
|   3   3  4359   53|  3.63  3.35|  .81   .81 ||  1.25A |  3.92  | 3 Adequate
|   4   4   718    9|  6.29  7.14|  .69   .60 ||  5.86A |( 7.33)| 4 Superior
+--------------------------------------------------------------------
```

```
AVERAGE MEASURE is mean of measures in category.
+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+--------------------+---------+---------+--------|
|    0      NONE         |( -5.00) -INF   -4.20|         |   0%   0%|  92.4  | 0 Unscorable
|    1     -3.69    .12  | -3.20  -4.20   -2.23| -3.94   |  79%  73%| 11.8%  | 1 Minimal
|    2     -2.70    .06  |  -.51  -2.23    1.62| -2.46   |  73%  82%|  -1.6% | 2 Limited
|    3      1.61    .03  |  3.92   1.62    6.25|  1.61   |  82%  78%|   6.4% | 3 Adequate
|    4      6.22    .04  |( 7.33)  6.25   +INF |  6.23   |  62%  54%| -19.1% | 4 Superior
+----------------------------------------------------------------------------+
```

Grade 6 Matrix Prompt 15 Item and Threshold Difficulty

```
+--------------------------------------------------------------------------------+
|ENTRY   RAW                       |  INFIT  | OUTFIT  |SCORE|        |        |
|NUMBER  SCORE  COUNT  MEASURE ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR.|DISPLACE| Domai G|
|---------------------------------+---------+---------+-----+--------+--------|
|    1  22055   8270    .05A   .02| .49 -9.9| .44 -9.9| .91 |  -.03  | P1D1  0|
|    2  21052   8270    .35A   .02| .50 -9.9| .44 -9.9| .91 |   .02  | P1D2  0|
|    3  21045   8270    .43A   .02| .41 -9.9| .35 -9.9| .92 |   .02  | P1D3  0|
|    4  21095   8270    .37A   .02| .41 -9.9| .36 -9.9| .92 |   .02  | P1D4  0|
|    5  21892   8270    .09A   .02| .65 -9.9| .63 -9.9| .89 |  -.03  | P1D5  0|
|---------------------------------+---------+---------+-----+--------+--------|
| MEAN  21428.  8270.    .26   .02| .49 -9.9| .44 -9.9|     |        |        |
| S.D.    449.     0.    .16   .00| .09  .0 | .10  .0 |     |        |        |
+--------------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1  P1D1
Domain ITEM DIFFICULTY MEASURE OF .05 ADDED TO MEASURES
+-----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------|
|  0   0      0   0|            |  .00   .00 || NONE  A |( -5.73)| 0 Unscorable
|  1   1    325   4|-3.08 -2.21 |  .42   .37 || -4.52A  | -3.82  | 1 Minimal
|  2   2   2683  32| -.08   .27 |  .58   .54 || -3.21A  |  -.84  | 2 Limited
|  3   3   4684  57| 3.59  3.26 |  .59   .53 ||  1.38A  |  3.92  | 3 Adequate
|  4   4    578   7| 6.83  7.85 |  .45   .36 ||  6.35A  |( 7.50) | 4 Superior
+-----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+--------------------+---------+---------+--------|
|    0      NONE         |( -5.73) -INF   -4.90|         |   0%   0%|  70.6  | 0 Unscorable
|    1     -4.47    .13  | -3.82  -4.90   -2.77| -4.67   |  66%  79%|   1.1% | 1 Minimal
|    2     -3.16    .07  |  -.84  -2.77    1.44| -2.97   |  90%  78%|  -1.9% | 2 Limited
|    3      1.43    .03  |  3.92   1.44    6.42|  1.43   |  86%  95%|   7.2% | 3 Adequate
|    4      6.40    .05  |( 7.50)  6.42   +INF |  6.41   |  88%  58%| -25.5% | 4 Superior
+----------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2  P1D2
Domain ITEM DIFFICULTY MEASURE OF .35 ADDED TO MEASURES
+-----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------|
|  0   0      0   0|            |  .00   .00 || NONE  A |( -5.80)| 0 Unscorable
|  1   1    402   5|-3.22 -2.08 |  .23   .15 || -4.94A  | -3.73  | 1 Minimal
|  2   2   3381  41|  .47   .65 |  .58   .54 || -3.21A  |  -.33  | 2 Limited
|  3   3   4060  49| 3.99  3.59 |  .66   .58 ||  1.83A  |  4.43  | 3 Adequate
|  4   4    427   5| 6.91  8.79 |  .49   .44 ||  6.32A  |( 7.78) | 4 Superior
+-----------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------|
|   0      NONE          | ( -5.80) -INF  -4.92|         |  0%   0% |  72.9   | 0 Unscorable
|   1     -4.59    .13   |  -3.73  -4.92  -2.56|  -4.73  | 87%  84% |  -1.0%  | 1 Minimal
|   2     -2.86    .06   |   -.33  -2.56   2.17|  -2.72  | 89%  77% |   1.8%  | 2 Limited
|   3      2.18    .03   |   4.43   2.17   6.70|   2.18  | 81%  91% |   5.9%  | 3 Adequate
|   4      6.67    .05   | ( 7.78)  6.70  +INF |   6.68  | 70%  62% | -32.7%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .43 ADDED TO MEASURES

```
+---------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00 ||  NONE A |( -5.84)| 0 Unscorable
|   1    1    443   5| -3.21 -2.04|  .19   .12 || -5.08A  | -3.67  | 1 Minimal
|   2    2   3135  38|   .33   .59|  .48   .41 || -3.12A  |  -.35  | 2 Limited
|   3    3   4436  54|  4.03  3.55|  .58   .53 ||  1.54A  |  4.53  | 3 Adequate
|   4    4    256   3|  7.33 11.46|  .42   .31 ||  6.66A  |( 8.19)| 4 Superior
+---------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------|
|   0      NONE          | ( -5.84) -INF  -4.93|         |  0%   0% |  73.4   | 0 Unscorable
|   1     -4.65    .13   |  -3.67  -4.93  -2.44|  -4.77  | 97%  85% |  -1.2%  | 1 Minimal
|   2     -2.69    .06   |   -.35  -2.44   1.98|  -2.58  | 91%  85% |    .8%  | 2 Limited
|   3      1.97    .03   |   4.53   1.98   7.11|   1.97  | 87%  94% |   7.0%  | 3 Adequate
|   4      7.09    .06   | ( 8.19)  7.11  +INF |   7.10  | 69%  48% | -47.9%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .37 ADDED TO MEASURES

```
+---------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00 ||  NONE A |( -5.86)| 0 Unscorable
|   1    1    453   5| -3.16 -2.01|  .22   .15 || -5.04A  | -3.67  | 1 Minimal
|   2    2   3183  38|   .35   .61|  .45   .39 || -3.03A  |  -.31  | 2 Limited
|   3    3   4260  52|  4.01  3.55|  .56   .50 ||  1.65A  |  4.41  | 3 Adequate
|   4    4    374   5|  7.04  9.40|  .47   .40 ||  6.42A  |( 7.90)| 4 Superior
+---------------------------------------------------------------------
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+---------------------+---------+----------+---------|
|   0      NONE          | ( -5.86) -INF  -4.94|         |  0%   0% |  72.6   | 0 Unscorable
|   1     -4.67    .13   |  -3.67  -4.94  -2.42|  -4.78  | 95%  81% |   -.9%  | 1 Minimal
|   2     -2.66    .06   |   -.31  -2.42   2.02|  -2.56  | 90%  83% |   1.5%  | 2 Limited
|   3      2.02    .03   |   4.41   2.02   6.81|   2.02  | 86%  92% |   6.2%  | 3 Adequate
|   4      6.79    .05   | ( 7.90)  6.81  +INF |   6.80  | 65%  65% | -37.0%  | 4 Superior
+----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5  P1D5
Domain ITEM DIFFICULTY MEASURE OF .09 ADDED TO MEASURES
+---------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0    0 |            |  .00   .00 || NONE  A |( -5.81)| 0 Unscorable
|  1    1    403    5 |-3.09 -2.09 |  .31   .23 ||-4.69A   | -3.71  | 1 Minimal
|  2    2   2861   35 |  .29   .43 |  .73   .71 ||-2.91A   |  -.54  | 2 Limited
|  3    3   4257   51 | 3.60  3.32 |  .88   .86 || 1.61A   |  3.89  | 3 Adequate
|  4    4    749    9 | 6.20  7.04 |  .65   .57 || 5.99A   |( 7.19)| 4 Superior
+---------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE---- |PROBABLTY| M->C C->M|RESIDUAL  |
|----------------------+----------------------+---------+----------+---------+
|   0      NONE        |( -5.81) -INF   -4.91 |         |   0%   0%|   71.7  | 0 Unscorable
|   1     -4.60    .13 |  -3.71  -4.91  -2.54 |  -4.74  |  80%  77%|   -.3%  | 1 Minimal
|   2     -2.82    .06 |   -.54  -2.54   1.70 |  -2.69  |  76%  78%|   -.5%  | 2 Limited
|   3      1.70    .03 |   3.89   1.70   6.12 |   1.70  |  79%  80%|   6.5%  | 3 Adequate
|   4      6.08    .04 |( 7.19)   6.12  +INF  |   6.09  |  63%  54%|  -18.8% | 4 Superior
+----------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 1Item and Threshold Difficulty

```
+--------------------------------------------------------------------------------+
|ENTRY    RAW                         |  INFIT    OUTFIT  |SCORE|              |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|-------------------------------------+----------+----------+-----+--------+--------+
|    1  22056   8487     .38A     .02| .71  -9.9| .61  -9.9| .88 |   -.02 | P1D1  0|
|    2  21716   8487     .44A     .02| .56  -9.9| .46  -9.9| .91 |    .00 | P1D2  0|
|    3  21437   8487     .68A     .02| .50  -9.9| .39  -9.9| .90 |    .02 | P1D3  0|
|    4  21806   8487     .51A     .02| .52  -9.9| .41  -9.9| .91 |   -.02 | P1D4  0|
|    5  21470   8487     .63A     .02| .65  -9.9| .55  -9.9| .89 |    .01 | P1D5  0|
|    6     DELETED                    |          |          |     |        | P2D1C 0|
|-------------------------------------+----------+----------+-----+--------+--------+
| MEAN  21697.  8487.     .53     .02| .59  -9.9| .48  -9.9|     |        |        |
| S.D.    228.     1.     .11     .00| .08   .0 | .08   .0 |     |        |        |
+--------------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1  P1D1
Domain ITEM DIFFICULTY MEASURE OF .38 ADDED TO MEASURES
+---------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0    0 |            |  .00   .00 || NONE  A |( -5.71)| 0 Unscorable
|  1    1    340    4 |-3.20 -1.96 |  .47   .34 ||-4.76A   | -3.95  | 1 Minimal
|  2    2   3102   37 |  .21   .26 |  .88   .84 ||-3.90A   |  -.86  | 2 Limited
|  3    3   4668   55 | 3.95  3.82 |  .87   .75 || 1.36A   |  4.71  | 3 Adequate
|  4    4    377    4 | 7.94  8.86 |  .50   .30 || 7.29A   |( 8.77)| 4 Superior
+---------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE---- |PROBABLTY| M->C C->M|RESIDUAL  |
|----------------------+----------------------+---------+----------+---------+
|   0      NONE        |( -5.71) -INF   -4.93 |         |   0%   0%|   78.6  | 0 Unscorable
|   1     -4.38    .13 |  -3.95  -4.93  -2.99 |  -4.66  |  76%  72%|   17.7% | 1 Minimal
|   2     -3.52    .07 |   -.86  -2.99   1.75 |  -3.25  |  77%  78%|   -.2%  | 2 Limited
|   3      1.74    .03 |   4.71   1.75   7.68 |   1.74  |  83%  85%|   3.1%  | 3 Adequate
|   4      7.67    .06 |( 8.77)   7.68  +INF  |   7.67  |  77%  46%|  -22.1% | 4 Superior
+----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .44 ADDED TO MEASURES
+------------------------------------------------------------------
| CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0      0   0 |            |  .00   .00 || NONE  A |(  -5.71)| 0 Unscorable
|   1    1    348   4 | -3.38 -1.94|  .31   .19 || -4.82A |  -3.94 | 1 Minimal
|   2    2   3477  41 |   .32   .44|  .67   .58 || -3.93A |   -.66 | 2 Limited
|   3    3   4234  50 |  4.17  3.98|  .69   .58 ||  1.68A |   4.82 | 3 Adequate
|   4    4    428   5 |  7.93  8.37|  .46   .31 ||  7.08A |(  8.62)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------------+
| CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
|  LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+---------+
|    0      NONE         |( -5.71) -INF   -4.92|         |  0%   0%|   80.1  | 0 Unscorable
|    1     -4.38    .13  | -3.94  -4.92  -2.96| -4.65   | 86%  79%|  16.5%  | 1 Minimal
|    2     -3.49    .07  |  -.66  -2.96   2.12| -3.22   | 87%  79%|   1.5%  | 2 Limited
|    3      2.12    .03  |  4.82   2.12   7.53|  2.12   | 81%  91%|   1.8%  | 3 Adequate
|    4      7.52    .06  |( 8.62)  7.53  +INF |  7.52   | 86%  46%| -18.1%  | 4 Superior
+------------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .68 ADDED TO MEASURES
+------------------------------------------------------------------
| CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0      0   0 |            |  .00   .00 || NONE  A |(  -5.75)| 0 Unscorable
|   1    1    392   5 | -3.39 -1.91|  .26   .14 || -5.15A |  -3.89 | 1 Minimal
|   2    2   3399  40 |   .28   .45|  .59   .45 || -3.98A |   -.60 | 2 Limited
|   3    3   4537  53 |  4.38  4.04|  .64   .55 ||  1.38A |   5.25 | 3 Adequate
|   4    4    159   2 |  8.49 13.07|  .50   .29 ||  7.75A |(  9.53)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------------+
| CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
|  LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+---------+---------+
|    0      NONE         |( -5.75) -INF   -4.93|         |  0%   0%|   81.6  | 0 Unscorable
|    1     -4.47    .12  | -3.89  -4.93  -2.85| -4.69   | 96%  78%|  14.7%  | 1 Minimal
|    2     -3.30    .06  |  -.60  -2.85   2.07| -3.08   | 90%  83%|   1.4%  | 2 Limited
|    3      2.06    .03  |  5.25   2.07   8.44|  2.06   | 86%  94%|   2.8%  | 3 Adequate
|    4      8.43    .07  |( 9.53)  8.44  +INF |  8.43   | 67%  38%| -46.3%  | 4 Superior
+------------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .51 ADDED TO MEASURES
+------------------------------------------------------------------
| CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0      0   0 |            |  .00   .00 || NONE  A |(  -5.74)| 0 Unscorable
|   1    1    389   5 | -3.39 -1.92|  .26   .13 || -4.97A |  -3.88 | 1 Minimal
|   2    2   3170  37 |   .15   .35|  .59   .46 || -3.81A |   -.70 | 2 Limited
|   3    3   4635  55 |  4.19  3.89|  .66   .57 ||  1.35A |   4.90 | 3 Adequate
|   4    4    293   3 |  7.93  9.72|  .62   .42 ||  7.43A |(  9.04)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  |50% CUM. | COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+---------------------+---------+----------+---------|
|   0       NONE          |( -5.74) -INF   -4.92|         |  0%   0% |  81.1   | 0 Unscorable
|   1      -4.46    .12   | -3.88  -4.92  -2.85 |  -4.68  | 89%  73% |  15.3%  | 1 Minimal
|   2      -3.30    .06   |  -.70  -2.85   1.87 |  -3.08  | 84%  83% |   -.1%  | 2 Limited
|   3       1.86    .03   |  4.90   1.87   7.95 |   1.86  | 86%  89% |   3.3%  | 3 Adequate
|   4       7.94    .06   |( 9.04)  7.95  +INF  |   7.94  | 65%  51% | -28.2%  | 4 Superior
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5 P1D5

Domain ITEM DIFFICULTY MEASURE OF .63 ADDED TO MEASURES

```
+--------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+-----------++---------+--------|
|   0    0      0   0|            |  .00   .00|| NONE A  |( -5.82)| 0 Unscorable
|   1    1    489   6| -3.07 -1.85|  .38   .26|| -5.23A  | -3.76  | 1 Minimal
|   2    2   3291  39|  .44   .50|  .74   .62|| -3.54A  |  -.42  | 2 Limited
|   3    3   4429  52| 4.24  4.00|  .81   .74||  1.42A  |  5.02  | 3 Adequate
|   4    4    278   3| 7.72  9.89|  .73   .52||  7.35A  |( 9.08)| 4 Superior
+--------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  |50% CUM. | COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+---------------------+---------+----------+---------|
|   0       NONE          |( -5.82) -INF   -4.93|         |  0%   0% |  83.6   | 0 Unscorable
|   1      -4.60    .12   | -3.76  -4.93  -2.60 |  -4.75  | 90%  59% |  11.8%  | 1 Minimal
|   2      -2.91    .06   |  -.42  -2.60   2.06 |  -2.77  | 80%  77% |   1.4%  | 2 Limited
|   3       2.05    .03   |  5.02   2.06   7.99 |   2.05  | 81%  88% |   2.4%  | 3 Adequate
|   4       7.98    .06   |( 9.08)  7.99  +INF  |   7.98  | 55%  46% | -29.6%  | 4 Superior
+------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 2 Item and Threshold Difficulty

```
+-----------------------------------------------------------------------------+
|ENTRY   RAW                   |  INFIT  |  OUTFIT |SCORE|        |          |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G |
|-----------------------------------+----------+----------+-----+--------+---------|
|    1  23965   8823    -.17A    .03| .60  -9.9| .48  -9.9| .88 |  -.06  | P1D1  0 |
|    2  23434   8823    -.04A    .02| .55  -9.9| .42  -9.9| .90 |  -.01  | P1D2  0 |
|    3  22774   8823     .32A    .03| .50  -9.9| .36  -9.9| .90 |   .05  | P1D3  0 |
|    4  23115   8823     .18A    .02| .53  -9.9| .38  -9.9| .90 |   .01  | P1D4  0 |
|    5  23118   8823     .16A    .02| .63  -9.9| .49  -9.9| .89 |   .00  | P1D5  0 |
|-----------------------------------+----------+----------+-----+--------+---------|
| MEAN  23281.  8823.     .09    .02| .56  -9.9| .43  -9.9|     |        |         |
| S.D.    401.     1.     .17    .00| .05   .0| .05   .0|     |        |         |
+-----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1
Domain ITEM DIFFICULTY MEASURE OF -.17 ADDED TO MEASURES

```
+--------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+-----------++---------+--------|
|   0    0      0   0|            |  .00   .00|| NONE A  |( -6.19)| 0 Unscorable
|   1    1    240   3| -3.90 -2.61|  .37   .29|| -4.63A  | -4.52  | 1 Minimal
|   2    2   2464  28|  -.60  -.38|  .75   .68|| -4.07A  | -1.65  | 2 Limited
|   3    3   5679  64| 3.67  3.51|  .75   .65||  1.03A  |  4.19  | 3 Adequate
|   4    4    440   5| 7.95  8.71|  .45   .20||  7.68A  |( 8.61)| 4 Superior
+--------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+-------------------+---------+---------+---------|
|    0       NONE         |( -6.19) -INF   -5.44|         |  0%   0%|   65.1  | 0 Unscorable
|    1      -4.80    .14  | -4.52  -5.44  -3.62| -5.14   | 85%  73%|  13.9%  | 1 Minimal
|    2      -4.24    .08  | -1.65  -3.62   .87| -3.91   | 85%  75%|  -2.7%  | 2 Limited
|    3       .86     .04  |  4.19   .87  7.51|   .87   | 87%  94%|   4.0%  | 3 Adequate
|    4      7.51     .06  |( 8.61)  7.51  +INF|  7.51   | 86%  55%| -20.8%  | 4 Superior
+----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF -.04 ADDED TO MEASURES

```
+----------------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-----------------+-----------+-----------++---------+--------+
|   0    0      0   0|            | .00   .00 || NONE A |( -6.23)| 0 Unscorable
|   1    1    281   3| -3.96 -2.55| .27   .16 || -4.86A | -4.47  | 1 Minimal
|   2    2   2979  34|  -.26  -.07| .65   .51 || -3.99A | -1.27  | 2 Limited
|   3    3   5057  57|  3.93  3.74| .67   .57 ||  1.48A |  4.39  | 3 Adequate
|   4    4    506   6|  7.71  8.16| .51   .30 ||  7.37A |( 8.43)| 4 Superior
+----------------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+-------------------+---------+---------+---------|
|    0       NONE         |( -6.23) -INF   -5.45|         |  0%   0%|   66.5  | 0 Unscorable
|    1      -4.90    .14  | -4.47  -5.45  -3.50| -5.18   | 81%  80%|  11.9%  | 1 Minimal
|    2      -4.03    .07  | -1.27  -3.50  1.44| -3.76   | 86%  80%|   1.0%  | 2 Limited
|    3      1.44     .04  |  4.39  1.44  7.34|  1.44   | 87%  91%|   2.2%  | 3 Adequate
|    4      7.33     .05  |( 8.43)  7.34  +INF|  7.33   | 74%  78%| -16.8%  | 4 Superior
+----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .32 ADDED TO MEASURES

```
+----------------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-----------------+-----------+-----------++---------+--------+
|   0    0      0   0|            | .00   .00 || NONE A |( -6.31)| 0 Unscorable
|   1    1    349   4| -3.87 -2.48| .26   .13 || -5.37A | -4.38  | 1 Minimal
|   2    2   3152  36|  -.10   .10| .59   .39 || -4.02A | -1.00  | 2 Limited
|   3    3   5167  59|  4.27  3.92| .65   .57 ||  1.34A |  5.02  | 3 Adequate
|   4    4    155   2|  8.43 14.61| .50   .27 ||  8.05A |( 9.47)| 4 Superior
+----------------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+-------------------+---------+---------+---------|
|    0       NONE         |( -6.31) -INF   -5.46|         |  0%   0%|   68.7  | 0 Unscorable
|    1      -5.05    .13  | -4.38  -5.46  -3.30| -5.24   | 96%  76%|   9.1%  | 1 Minimal
|    2      -3.70    .07  | -1.00  -3.30  1.67| -3.51   | 91%  79%|   2.1%  | 2 Limited
|    3      1.66     .03  |  5.02  1.67  8.37|  1.66   | 87%  96%|   2.7%  | 3 Adequate
|    4      8.37     .07  |( 9.47)  8.37  +INF|  8.37   | 56%  41%| -51.3%  | 4 Superior
+----------------------------------------------------------------------------+
```

Data Recognition Corporation

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4  P1D4
Domain ITEM DIFFICULTY MEASURE OF .18 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 ||  NONE A |( -6.30)| 0 Unscorable
|  1    1   355    4 |-3.84 -2.49 |  .26   .14 || -5.23A  | -4.35  | 1 Minimal
|  2    2  2912   33 | -.22  -.01 |  .59   .40 || -3.83A  | -1.09  | 2 Limited
|  3    3  5288   60 | 4.09  3.80 |  .70   .62 ||  1.26A  |  4.72  | 3 Adequate
|  4    4   268    3 | 8.07 10.74 |  .57   .30 ||  7.81A  |( 9.09)| 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+----------+---------+
|   0       NONE        |( -6.30) -INF  -5.45|         |  0%   0% |  69.2   | 0 Unscorable
|   1      -5.05    .13 | -4.35  -5.45  -3.27 | -5.24  | 94%  73% |  8.9%   | 1 Minimal
|   2      -3.65    .07 | -1.09  -3.27   1.45 | -3.47  | 85%  81% |   .7%   | 2 Limited
|   3       1.44    .04 |  4.72   1.45   7.99 |  1.45  | 88%  92% |  3.1%   | 3 Adequate
|   4       7.99    .06 |( 9.09)  7.99  +INF | 7.99  | 58%  61% | -34.4%  | 4 Superior
+------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5  P1D5
Domain ITEM DIFFICULTY MEASURE OF .16 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0     0    0 |            |  .00   .00 ||  NONE A |( -6.38)| 0 Unscorable
|  1    1   436    5 |-3.55 -2.41 |  .37   .25 || -5.34A  | -4.24  | 1 Minimal
|  2    2  2862   32 | -.07   .06 |  .69   .51 || -3.46A  |  -.90  | 2 Limited
|  3    3  5142   58 | 4.00  3.78 |  .81   .76 ||  1.31A  |  4.56  | 3 Adequate
|  4    4   383    4 | 7.65  9.05 |  .67   .41 ||  7.49A  |( 8.75)| 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+----------+---------+
|   0       NONE        |( -6.38) -INF  -5.47|         |  0%   0% |  69.6   | 0 Unscorable
|   1      -5.18    .13 | -4.24  -5.47  -3.03 | -5.31  | 84%  82% |  7.2%   | 1 Minimal
|   2      -3.30    .06 |  -.90  -3.03   1.49 | -3.18  | 82%  75% |   .9%   | 2 Limited
|   3       1.47    .04 |  4.56   1.49   7.66 |  1.48  | 84%  90% |  2.7%   | 3 Adequate
|   4       7.65    .06 |( 8.75)  7.66  +INF | 7.65  | 63%  46% | -23.6%  | 4 Superior
+------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 3 Item and Threshold Difficulty

```
+---------------------------------------------------------------------------+
|ENTRY   RAW                      |  INFIT   |  OUTFIT  |SCORE|        |       |
|NUMBER  SCORE  COUNT  MEASURE ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|---------------------------------+----------+----------+-----+--------+-------+
|    1  22849   8546    .04A    .03| .61  -9.9| .48  -9.9| .89 |  -.07  | P1D1 0|
|    2  22148   8546    .24A    .03| .54  -9.9| .41  -9.9| .91 |   .01  | P1D2 0|
|    3  21808   8546    .51A    .03| .51  -9.9| .37  -9.9| .90 |   .04  | P1D3 0|
|    4  22209   8546    .32A    .03| .52  -9.9| .37  -9.9| .90 |  -.01  | P1D4 0|
|    5  21966   8546    .37A    .02| .67  -9.9| .53  -9.9| .89 |   .02  | P1D5 0|
|---------------------------------+----------+----------+-----+--------+-------+
|MEAN  22196.   8546.    .30    .03| .57  -9.9| .43  -9.9|     |        |       |
|S.D.    356.      0.    .16    .00| .06   .0 | .07   .0 |     |        |       |
+---------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF .04 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE A  |( -6.21)| 0 Unscorable
|  1    1    258   3| -3.81 -2.56|  .37   .28 || -4.91A  | -4.46 | 1 Minimal
|  2    2   2677  31|  -.34  -.15|  .75   .68 || -4.08A  | -1.35 | 2 Limited
|  3    3   5207  61|  3.95  3.79|  .77   .64 ||  1.24A  |  4.54 | 3 Adequate
|  4    4    404   5|  8.24  8.86|  .45   .21 ||  7.76A  |( 8.90)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.

+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+---------+----------+---------+
|  0       NONE        |( -6.21) -INF   -5.43|         |  0%   0% |  63.0   | 0 Unscorable
|  1      -4.87    .14 |  -4.46  -5.43  -3.50|  -5.15  | 83%  72% |  11.1%  | 1 Minimal
|  2      -4.04    .08 |  -1.35  -3.50   1.29|  -3.76  | 85%  75% |  -2.4%  | 2 Limited
|  3       1.28    .04 |   4.54   1.29   7.80|   1.28  | 85%  94% |   4.0%  | 3 Adequate
|  4       7.80    .06 |( 8.90)  7.80  +INF |   7.80  | 89%  52% | -19.5%  | 4 Superior
+----------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .24 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE A  |( -6.27)| 0 Unscorable
|  1    1    311   4| -3.83 -2.48|  .29   .16 || -5.24A  | -4.39 | 1 Minimal
|  2    2   3262  38|   .05   .20|  .65   .51 || -4.02A  |  -.91 | 2 Limited
|  3    3   4579  54|  4.30  4.10|  .66   .54 ||  1.68A  |  4.87 | 3 Adequate
|  4    4    394   5|  8.23  8.86|  .46   .27 ||  7.57A  |( 8.91)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.

+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |   SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+---------+----------+---------+
|  0       NONE        |( -6.27) -INF   -5.45|         |  0%   0% |  64.0   | 0 Unscorable
|  1      -5.00    .14 |  -4.39  -5.45  -3.34|  -5.21  | 86%  77% |   9.2%  | 1 Minimal
|  2      -3.78    .07 |   -.91  -3.34   1.92|  -3.57  | 88%  80% |   2.0%  | 2 Limited
|  3       1.92    .04 |   4.87   1.92   7.82|   1.92  | 84%  93% |   1.5%  | 3 Adequate
|  4       7.81    .06 |( 8.91)  7.82  +INF |   7.81  | 89%  54% | -19.6%  | 4 Superior
+----------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .51 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE A  |( -6.34)| 0 Unscorable
|  1    1    364   4| -3.80 -2.42|  .26   .13 || -5.62A  | -4.32 | 1 Minimal
|  2    2   3221  38|   .07   .24|  .60   .40 || -4.04A  |  -.79 | 2 Limited
|  3    3   4842  57|  4.51  4.16|  .67   .58 ||  1.41A  |  5.34 | 3 Adequate
|  4    4    119   1|  8.75 16.60|  .53   .27 ||  8.25A  |( 9.86)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|-----------------------+---------------------+---------+----------+--------- |
|   0       NONE        |( -6.34) -INF   -5.47|         |  0%   0%|   65.2   | 0 Unscorable
|   1     -5.11    .14  | -4.32  -5.47  -3.19 |  -5.27  | 98%  75%|    7.5%  | 1 Minimal
|   2     -3.53    .07  |  -.79  -3.19   1.93 |  -3.37  | 90%  83%|    1.8%  | 2 Limited
|   3      1.92    .04  |  5.34   1.93   8.76 |   1.92  | 88%  94%|    2.8%  | 3 Adequate
|   4      8.76    .07  |( 9.86)  8.76  +INF  |   8.76  | 56%  47%|  -55.9%  | 4 Superior
+----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4  P1D4
Domain ITEM DIFFICULTY MEASURE OF .32 ADDED TO MEASURES
-------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+-----------++---------+--------+
|  0    0     0   0 |            |  .00   .00 || NONE  A |( -6.33)| 0 Unscorable
|  1    1   363   4 |-3.74 -2.44 |  .29   .16 || -5.42A | -4.31  | 1 Minimal
|  2    2  2970  35 | -.10   .13 |  .57   .39 || -3.83A |  -.90  | 2 Limited
|  3    3  4946  58 | 4.30  4.01 |  .66   .57 ||  1.36A |  4.95  | 3 Adequate
|  4    4   267   3 | 8.32 10.52 |  .57   .31 ||  7.89A |( 9.31)| 4 Superior
+-----------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.

+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|-----------------------+---------------------+---------+----------+--------- |
|   0       NONE        |( -6.33) -INF   -5.46|         |  0%   0%|   65.2   | 0 Unscorable
|   1     -5.10    .14  | -4.31  -5.46  -3.17 |  -5.26  | 92%  71%|    7.5%  | 1 Minimal
|   2     -3.51    .07  |  -.90  -3.17   1.69 |  -3.36  | 84%  84%|     .2%  | 2 Limited
|   3      1.68    .04  |  4.95   1.69   8.21 |   1.68  | 89%  91%|    3.2%  | 3 Adequate
|   4      8.21    .07  |( 9.31)  8.21  +INF  |   8.21  | 60%  53%|  -31.0%  | 4 Superior
+----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5  P1D5
Domain ITEM DIFFICULTY MEASURE OF .37 ADDED TO MEASURES
-------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+-----------++---------+--------+
|  0    0     0   0 |            |  .00   .00 || NONE  A |( -6.39)| 0 Unscorable
|  1    1   425   5 |-3.46 -2.37 |  .41   .26 || -5.57A | -4.23  | 1 Minimal
|  2    2  3140  37 |  .20   .27 |  .76   .59 || -3.62A |  -.66  | 2 Limited
|  3    3  4663  55 | 4.31  4.11 |  .84   .76 ||  1.53A |  4.97  | 3 Adequate
|  4    4   318   4 | 7.96  9.69 |  .67   .43 ||  7.66A |( 9.13)| 4 Superior
+-----------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.

+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|-----------------------+---------------------+---------+----------+--------- |
|   0       NONE        |( -6.39) -INF   -5.48|         |  0%   0%|   65.4   | 0 Unscorable
|   1     -5.20    .14  | -4.23  -5.48  -2.99 |  -5.32  | 90%  59%|    6.1%  | 1 Minimal
|   2     -3.25    .06  |  -.66  -2.99   1.91 |  -3.14  | 81%  77%|    2.0%  | 2 Limited
|   3      1.90    .04  |  4.97   1.91   8.03 |   1.90  | 82%  90%|    1.9%  | 3 Adequate
|   4      8.03    .06  |( 9.13)  8.03  +INF  |   8.03  | 61%  46%|  -25.8%  | 4 Superior
+----------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 4 Item and Threshold Difficulty

```
+--------------------------------------------------------------------------+
|ENTRY   RAW                        | INFIT   | OUTFIT  |SCORE |          |         |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|-----------------------------------+----------+----------+------+--------+--------|
|    1   25290   9087    -.76A    .03| .54  -9.9| .43  -9.9| .89 |   -.08 | P1D1  0|
|    2   24664   9087    -.58A    .02| .57  -9.9| .43  -9.9| .90 |   -.03 | P1D2  0|
|    3   23875   9087    -.15A    .03| .55  -9.9| .38  -9.9| .89 |    .04 | P1D3  0|
|    4   24011   9087    -.25A    .03| .53  -9.9| .37  -9.9| .90 |    .02 | P1D4  0|
|    5   23612   9087    -.14A    .02| .68  -9.9| .52  -9.9| .89 |    .04 | P1D5  0|
|-----------------------------------+----------+----------+------+--------+--------|
| MEAN   24290.  9087.    -.38    .03| .57  -9.9| .43  -9.9|      |        |        |
| S.D.     608.     0.     .25    .00| .05    .0| .05    .0|      |        |        |
+--------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.76 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+------------++---------+--------|
|   0   0      0    0 |            |  .00   .00 || NONE A  |( -7.02)| 0 Unscorable
|   1   1    213    2 |-4.68 -3.55 | .31   .25  ||  -4.94A |  -5.23 | 1 Minimal
|   2   2   2138   24 |-1.19  -.87 | .66   .60  ||  -4.00A |  -2.23 | 2 Limited
|   3   3   6143   68 | 3.34  3.20 | .67   .60  ||   .99A  |   3.71 | 3 Adequate
|   4   4    593    7 | 7.78  8.05 | .46   .21  ||  7.95A  |( 8.29) | 4 Superior
+-------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|------------------------+--------------------+---------+----------+---------|
|   0      NONE          |( -7.02) -INF   -6.23|         |   0%   0%|   52.9  | 0 Unscorable
|   1     -5.70    .15   |  -5.23  -6.23  -4.26|  -5.96  |  87%  81%|   5.1%  | 1 Minimal
|   2     -4.76    .08   |  -2.23  -4.26   .25 |  -4.50  |  84%  79%|  -3.5%  | 2 Limited
|   3      .23     .04   |   3.71   .25   7.19 |   .24   |  92%  93%|   3.7%  | 3 Adequate
|   4     7.19     .05   |( 8.29)  7.19  +INF  |  7.19   |  80%  88%|  -14.3% | 4 Superior
+--------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF -.58 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+------------++---------+--------|
|   0   0      0    0 |            |  .00   .00 || NONE A  |( -7.07)| 0 Unscorable
|   1   1    245    3 |-4.72 -3.45 | .23   .13  ||  -5.21A |  -5.19 | 1 Minimal
|   2   2   2728   30 | -.69  -.47 | .69   .56  ||  -4.01A |  -1.81 | 2 Limited
|   3   3   5493   60 | 3.60  3.46 | .70   .59  ||  1.52A  |   4.03 | 3 Adequate
|   4   4    621    7 | 7.66  7.82 | .48   .26  ||  7.70A  |( 8.22) | 4 Superior
+-------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|------------------------+--------------------+---------+----------+---------|
|   0      NONE          |( -7.07) -INF   -6.24|         |   0%   0%|   53.5  | 0 Unscorable
|   1     -5.79    .15   |  -5.19  -6.24  -4.15|  -6.01  |  96%  78%|   4.3%  | 1 Minimal
|   2     -4.59    .08   |  -1.81  -4.15   .95 |  -4.38  |  84%  81%|   .1%   | 2 Limited
|   3      .94     .04   |   4.03   .95   7.13 |   .94   |  89%  91%|   2.4%  | 3 Adequate
|   4     7.12     .05   |( 8.22)  7.13  +INF  |  7.12   |  78%  82%|  -12.5% | 4 Superior
+--------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF -.15 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ|| MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00|| NONE A  |( -7.21)| 0 Unscorable
|   1    1    349   4| -4.48 -3.28|  .26   .14|| -5.87A  | -5.03  | 1 Minimal
|   2    2   2864  32|  -.48  -.26|  .62   .38|| -3.89A  | -1.43  | 2 Limited
|   3    3   5698  63|  4.00  3.65|  .73   .66||  1.32A  |  4.73  | 3 Adequate
|   4    4    176   2|  8.14 14.86|  .64   .36||  8.44A  |( 9.39) | 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------+
|   0      NONE        |( -7.21) -INF  -6.29|         |  0%   0% |  55.1   | 0 Unscorable
|   1     -6.02   .15  | -5.03  -6.29  -3.78| -6.14   | 98%  77% |  2.9%   | 1 Minimal
|   2     -4.04   .07  | -1.43  -3.78   1.18| -3.93   | 89%  79% |  1.0%   | 2 Limited
|   3      1.17   .03  |  4.73   1.18   8.29|  1.18   | 88%  95% |  3.6%   | 3 Adequate
|   4      8.29   .07  |( 9.39)  8.29  +INF |  8.29   | 42%  34% | -50.3%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF -.25 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ|| MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00|| NONE A  |( -7.22)| 0 Unscorable
|   1    1    367   4| -4.43 -3.23|  .26   .14|| -5.79A  | -5.00  | 1 Minimal
|   2    2   2840  31|  -.49  -.25|  .57   .36|| -3.71A  | -1.39  | 2 Limited
|   3    3   5556  61|  3.91  3.61|  .69   .62||  1.42A  |  4.50  | 3 Adequate
|   4    4    324   4|  8.02 10.46|  .58   .31||  8.08A  |( 8.93) | 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+--------------------+---------+----------+---------+
|   0      NONE        |( -7.22) -INF  -6.30|         |  0%   0% |  55.1   | 0 Unscorable
|   1     -6.04   .15  | -5.00  -6.30  -3.72| -6.15   | 96%  71% |  3.6%   | 1 Minimal
|   2     -3.96   .07  | -1.39  -3.72   1.18| -3.86   | 86%  78% |   .9%   | 2 Limited
|   3      1.17   .04  |  4.50   1.18   7.83|  1.17   | 87%  93% |  3.1%   | 3 Adequate
|   4      7.83   .06  |( 8.93)  7.83  +INF |  7.83   | 60%  66% | -31.2%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5

Domain ITEM DIFFICULTY MEASURE OF -.14 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ|| MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00|| NONE A  |( -7.31)| 0 Unscorable
|   1    1    460   5| -3.99 -3.07|  .45   .31|| -6.02A  | -4.87  | 1 Minimal
|   2    2   3127  34|  -.08   .01|  .73   .51|| -3.43A  | -1.01  | 2 Limited
|   3    3   5102  56|  3.98  3.76|  .83   .80||  1.68A  |  4.59  | 3 Adequate
|   4    4    398   4|  7.68  9.31|  .68   .45||  7.77A  |( 8.73) | 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|-------------------------+---------------------+---------+----------+--------- |
|   0       NONE          ( -7.31) -INF   -6.33 |         |  0%   0% |  55.7    | 0 Unscorable
|   1      -6.16    .15   | -4.87  -6.33  -3.41 |  -6.23  | 84%  78% |  2.2%    | 1 Minimal
|   2      -3.57    .06   | -1.01  -3.41   1.55 |  -3.51  | 78%  84% |  3.0%    | 2 Limited
|   3       1.54    .03   |  4.59   1.55   7.64 |   1.54  | 87%  85% |  1.6%    | 3 Adequate
|   4       7.63    .06   ( 8.73)  7.64  +INF   |   7.63  | 60%  54% | -24.0%   | 4 Superior
+--------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 5 Item and Threshold Difficulty

```
+----------------------------------------------------------------------------------+
|ENTRY    RAW                        |   INFIT   |  OUTFIT  |SCORE|        |          |
|NUMBER  SCORE   COUNT   MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G  |
|------------------------------------+----------+----------+-----+--------+--------- |
|    1   24738   9121     -.35A    .03| .57  -9.9| .47  -9.9| .88 |   -.09 | P1D1  0  |
|    2   23747   9121     -.08A    .02| .59  -9.9| .45  -9.9| .90 |    .00 | P1D2  0  |
|    3   23149   9121      .29A    .02| .54  -9.9| .39  -9.9| .90 |    .04 | P1D3  0  |
|    4   23424   9121      .13A    .02| .53  -9.9| .39  -9.9| .90 |    .02 | P1D4  0  |
|    5   23216   9121      .17A    .02| .67  -9.9| .53  -9.9| .89 |    .03 | P1D5  0  |
|------------------------------------+----------+----------+-----+--------+--------- |
| MEAN  23655.   9121.     .03     .02| .58  -9.9| .44  -9.9|     |        |          |
| S.D.    580.      0.     .23     .00| .05    .0| .05    .0|     |        |          |
+----------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1
Domain ITEM DIFFICULTY MEASURE OF -.35 ADDED TO MEASURES

```
+---------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0     0   0|            |  .00   .00 ||  NONE A |( -6.60)| 0 Unscorable
|   1    1   252   3| -4.36 -3.07|  .28   .24 || -4.89A  | -4.89  | 1 Minimal
|   2    2  2542  28|  -.85  -.58|  .69   .67 || -4.18A  | -1.90  | 2 Limited
|   3    3  5906  65|  3.61  3.44|  .71   .62 ||  1.02A  |  4.19  | 3 Adequate
|   4    4   421   5|  8.08  8.76|  .49   .22 ||  8.05A  |( 8.80) | 4 Superior
+---------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL  |
|-------------------------+---------------------+---------+----------+--------- |
|   0       NONE          ( -6.60) -INF   -5.84 |         |  0%   0% |  66.4    | 0 Unscorable
|   1      -5.24    .14   | -4.89  -5.84  -3.95 |  -5.55  | 82%  82% | 11.6%    | 1 Minimal
|   2      -4.53    .08   | -1.90  -3.95    .68 |  -4.23  | 84%  80% | -3.3%    | 2 Limited
|   3        .67    .04   |  4.19    .68   7.70 |    .67  | 88%  93% |  4.0%    | 3 Adequate
|   4       7.70    .06   ( 8.80)  7.70  +INF   |   7.70  | 83%  47% | -19.1%   | 4 Superior
+--------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P1D2
Domain ITEM DIFFICULTY MEASURE OF -.08 ADDED TO MEASURES

```
+---------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0     0   0|            |  .00   .00 ||  NONE A |( -6.68)| 0 Unscorable
|   1    1   324   4| -4.25 -2.94|  .30   .17 || -5.33A  | -4.80  | 1 Minimal
|   2    2  3383  37|  -.23  -.08|  .70   .56 || -4.11A  | -1.28  | 2 Limited
|   3    3  4999  55|  4.04  3.85|  .72   .60 ||  1.67A  |  4.64  | 3 Adequate
|   4    4   415   5|  7.99  8.72|  .52   .30 ||  7.77A  |( 8.79) | 4 Superior
+---------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|--------------------------+--------------------+---------+----------+---------|
|   0       NONE          |( -6.68) -INF  -5.86 |         |  0%   0% |   68.1  | 0 Unscorable
|   1      -5.41     .13  | -4.80  -5.86  -3.75 |  -5.62  | 77%  81% |   9.9%  | 1 Minimal
|   2      -4.19     .07  | -1.28  -3.75   1.59 |  -3.98  | 86%  79% |   1.5%  | 2 Limited
|   3       1.59     .03  |  4.64   1.59   7.70 |   1.59  | 84%  91% |   1.8%  | 3 Adequate
|   4       7.69     .06  |( 8.79)  7.70  +INF  |   7.69  | 81%  47% |  -19.1% | 4 Superior
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .29 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0      0    0|            |  .00   .00 || NONE  A |( -6.79)| 0 Unscorable
|   1    1    437    5| -4.10 -2.81|  .28   .14 || -5.88A  | -4.64  | 1 Minimal
|   2    2   3468   38|  -.07   .09|  .62   .42 || -3.98A  |  -.96  | 2 Limited
|   3    3   5088   56|  4.34  4.01|  .69   .60 ||  1.47A  |  5.22  | 3 Adequate
|   4    4    128    1|  8.54 15.64|  .58   .33 ||  8.39A  |( 9.78) | 4 Superior
+------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|--------------------------+--------------------+---------+----------+---------|
|   0       NONE          |( -6.79) -INF  -5.88 |         |  0%   0% |   71.5  | 0 Unscorable
|   1      -5.59     .13  | -4.64  -5.88  -3.41 |  -5.71  | 98%  76% |   7.1%  | 1 Minimal
|   2      -3.69     .06  |  -.96  -3.41   1.77 |  -3.57  | 90%  80% |   2.2%  | 2 Limited
|   3       1.76     .03  |  5.22   1.77   8.68 |   1.76  | 86%  95% |   2.3%  | 3 Adequate
|   4       8.68     .07  |( 9.78)  8.68  +INF  |   8.68  | 47%  35% |  -53.0% | 4 Superior
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .13 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT|  MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0    0      0    0|            |  .00   .00 || NONE  A |( -6.81)| 0 Unscorable
|   1    1    447    5| -4.09 -2.80|  .26   .13 || -5.75A  | -4.64  | 1 Minimal
|   2    2   3304   36|  -.14   .02|  .60   .43 || -3.78A  | -1.01  | 2 Limited
|   3    3   5111   56|  4.18  3.90|  .68   .59 ||  1.49A  |  4.90  | 3 Adequate
|   4    4    259    3|  8.23 10.65|  .59   .35 ||  8.04A  |( 9.27) | 4 Superior
+------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|--------------------------+--------------------+---------+----------+---------|
|   0       NONE          |( -6.81) -INF  -5.90 |         |  0%   0% |   69.8  | 0 Unscorable
|   1      -5.62     .13  | -4.64  -5.90  -3.39 |  -5.74  | 95%  72% |   7.8%  | 1 Minimal
|   2      -3.65     .06  | -1.01  -3.39   1.63 |  -3.54  | 86%  81% |   1.4%  | 2 Limited
|   3       1.62     .03  |  4.90   1.63   8.17 |   1.62  | 87%  92% |   2.3%  | 3 Adequate
|   4       8.17     .07  |( 9.27)  8.17  +INF  |   8.17  | 63%  59% |  -32.1% | 4 Superior
+------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5  P1D5
Domain ITEM DIFFICULTY MEASURE OF .17 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0    0|            |  .00   .00 ||NONE   A |( -6.87)| 0 Unscorable
|  1    1    532    6|-3.72 -2.70|  .44   .31 || -5.88A  | -4.52  | 1 Minimal
|  2    2   3418   37|  .11   .16|  .75   .58 || -3.50A  |  -.76  | 2 Limited
|  3    3   4836   53| 4.17  3.98|  .82   .76 ||  1.63A  |  4.86  | 3 Adequate
|  4    4    335    4| 7.90  9.39|  .65   .40 ||  7.75A  |( 9.02)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |   SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+---------+----------+---------+
|   0       NONE       |( -6.87) -INF  -5.91 |         |  0%   0% |  70.9   | 0 Unscorable
|   1      -5.71   .13 | -4.52  -5.91  -3.14 |  -5.79  | 84%  82% |  6.1%   | 1 Minimal
|   2      -3.33   .06 |  -.76  -3.14   1.81 |  -3.25  | 84%  72% |  2.6%   | 2 Limited
|   3       1.80   .03 |  4.86   1.81   7.93 |   1.80  | 81%  91% |  1.2%   | 3 Adequate
|   4       7.92   .06 |( 9.02)  7.93  +INF  |   7.92  | 68%  48% | -24.2%  | 4 Superior
+----------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 6 Item and Threshold Difficulty

```
+------------------------------------------------------------------------------+
|ENTRY   RAW                          |  INFIT  | OUTFIT  |SCORE|              |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR.|DISPLACE| Domai G|
|-------------------------------------+---------+---------+-----+--------+---------|
|    1  23160    8567   -.11A    .03| .63 -9.9| .52 -9.9| .88 |  -.04  | P1D1  0
|    2  22861    8567   -.04A    .02| .56 -9.9| .44 -9.9| .90 |  -.01  | P1D2  0
|    3  22833    8567    .05A    .03| .48 -9.9| .36 -9.9| .90 |  -.01  | P1D3  0
|    4  22633    8567    .06A    .02| .52 -9.9| .40 -9.9| .91 |   .00  | P1D4  0
|    5  21998    8567    .29A    .02| .70 -9.9| .57 -9.9| .89 |   .05  | P1D5  0
|-------------------------------------+---------+---------+-----+--------+---------|
| MEAN  22697.   8567.    .05    .02| .58 -9.9| .46 -9.9|     |        |         |
| S.D.    388.      1.    .14    .00| .08   .0| .08   .0|     |        |         |
+------------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1  P1D1
Domain ITEM DIFFICULTY MEASURE OF -.11 ADDED TO MEASURES
+--------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ ||MEASURE  |MEASURE |
|--------------------+------------+------------++---------+--------+
|  0    0      0    0|            |  .00   .00 ||NONE   A |( -6.05)| 0 Unscorable
|  1    1    249    3|-3.81 -2.45|  .35   .27 || -4.54A  | -4.42  | 1 Minimal
|  2    2   2459   29| -.53  -.37|  .78   .68 || -4.06A  | -1.60  | 2 Limited
|  3    3   5443   64| 3.63  3.47|  .79   .71 ||  1.00A  |  4.19  | 3 Adequate
|  4    4    416    5| 7.80  8.81|  .52   .28 ||  7.60A  |( 8.59)| 4 Superior
+--------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |   SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.| AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+---------+----------+---------+
|   0       NONE       |( -6.05) -INF  -5.32 |         |  0%   0% |  67.8   | 0 Unscorable
|   1      -4.65   .14 | -4.42  -5.32  -3.53 |  -5.01  | 78%  77% | 16.5%   | 1 Minimal
|   2      -4.17   .08 | -1.60  -3.53   .90  |  -3.82  | 77%  80% | -1.6%   | 2 Limited
|   3        .89   .04 |  4.19   .90   7.49  |   .90   | 89%  89% |  3.6%   | 3 Adequate
|   4       7.49   .06 |( 8.59)  7.49  +INF  |   7.49  | 78%  61% | -21.7%  | 4 Superior
+----------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF -.04 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0   0      0    0|            |  .00   .00 || NONE  A |( -6.09)|  0 Unscorable
|   1   1    281    3| -3.83 -2.41|  .30   .19 || -4.70A  |  -4.38 |  1 Minimal
|   2   2   2746   32|  -.36  -.17|  .67   .54 || -3.97A  |  -1.35 |  2 Limited
|   3   3   5072   59|  3.78  3.59|  .70   .61 ||  1.28A  |   4.30 |  3 Adequate
|   4   4    468    5|  7.76  8.33|  .49   .29 ||  7.39A  |( 8.45) |  4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  |50% CUM.| COHERENCE|OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-------------------------+--------------------+---------+----------+--------+
|   0      NONE          |( -6.09) -INF  -5.33|         |  0%   0% |  68.2  |  0 Unscorable
|   1     -4.74   .14    |  -4.38 -5.33  -3.44| -5.04   | 86%  75% | 15.1%  |  1 Minimal
|   2     -4.01   .07    |  -1.35 -3.44   1.25| -3.71   | 85%  79% |   .3%  |  2 Limited
|   3      1.24   .04    |   4.30  1.25   7.36|  1.24   | 86%  92% |  2.6%  |  3 Adequate
|   4      7.35   .06    |( 8.45)  7.36  +INF |  7.35   | 83%  58% | -18.0% |  4 Superior
+-----------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .05 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0   0      0    0|            |  .00   .00 || NONE  A |( -6.10)|  0 Unscorable
|   1   1    290    3| -3.89 -2.41|  .24   .14 || -4.81A  |  -4.36 |  1 Minimal
|   2   2   2568   30|  -.53  -.25|  .57   .41 || -4.00A  |  -1.42 |  2 Limited
|   3   3   5429   63|  3.84  3.56|  .64   .58 ||  1.00A  |   4.46 |  3 Adequate
|   4   4    280    3|  8.21 10.67|  .45   .20 ||  7.81A  |( 8.96) |  4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  |50% CUM.| COHERENCE|OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-------------------------+--------------------+---------+----------+--------+
|   0      NONE          |( -6.10) -INF  -5.33|         |  0%   0% |  69.2  |  0 Unscorable
|   1     -4.76   .14    |  -4.36 -5.33  -3.41| -5.05   | 94%  80% | 14.5%  |  1 Minimal
|   2     -3.95   .07    |  -1.42 -3.41   1.07| -3.67   | 86%  86% |  -.9%  |  2 Limited
|   3      1.05   .04    |   4.46  1.07   7.86|  1.06   | 92%  92% |  3.8%  |  3 Adequate
|   4      7.86   .06    |( 8.96)  7.86  +INF |  7.86   | 70%  82% | -34.0% |  4 Superior
+-----------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF .06 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0   0      0    0|            |  .00   .00 || NONE  A |( -6.18)|  0 Unscorable
|   1   1    360    4| -3.70 -2.34|  .30   .17 || -4.97A  |  -4.27 |  1 Minimal
|   2   2   2778   32|  -.28  -.05|  .56   .40 || -3.69A  |  -1.12 |  2 Limited
|   3   3   4999   58|  3.91  3.65|  .65   .60 ||  1.29A  |   4.40 |  3 Adequate
|   4   4    430    5|  7.60  8.61|  .62   .40 ||  7.38A  |( 8.54) |  4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |  SCORE-TO-MEASURE  |50% CUM.|COHERENCE|OBS-EXP  |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY|M->C C->M|RESIDUAL |
|------------------------+---------------------+--------+---------+---------|
|   0      NONE          |( -6.18) -INF  -5.34 |        |  0%  0% |  69.6   | 0 Unscorable
|   1     -4.91    .13   | -4.27  -5.34  -3.22 | -5.11  | 94% 64% | 12.7%   | 1 Minimal
|   2     -3.63    .07   | -1.12  -3.22   1.36 | -3.43  | 86% 79% |   .7%   | 2 Limited
|   3      1.35    .04   |  4.40   1.36   7.45 |  1.35  | 85% 93% |  2.4%   | 3 Adequate
|   4      7.44    .06   |( 8.54)  7.45  +INF  |  7.44  | 66% 50% | -20.3%  | 4 Superior
+--------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5 P1D5

Domain ITEM DIFFICULTY MEASURE OF .29 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
| LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+-----------+|--------+--------|
|   0   0      0    0 |            |  .00   .00 || NONE A |( -6.26)| 0 Unscorable
|   1   1    452    5 |-3.30 -2.26 |  .48   .35 || -5.34A | -4.16  | 1 Minimal
|   2   2   3129   37 |  .18   .24 |  .75   .56 || -3.56A |  -.73  | 2 Limited
|   3   3   4656   54 | 4.08  3.85 |  .88   .86 ||  1.50A |  4.74  | 3 Adequate
|   4   4    330    4 | 7.50  9.65 |  .76   .55 ||  7.40A |( 8.79) | 4 Superior
+------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |  SCORE-TO-MEASURE  |50% CUM.|COHERENCE|OBS-EXP  |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY|M->C C->M|RESIDUAL |
|------------------------+---------------------+--------+---------+---------|
|   0      NONE          |( -6.26) -INF  -5.36 |        |  0%  0% |  71.5   | 0 Unscorable
|   1     -5.05    .13   | -4.16  -5.36  -2.98 | -5.19  | 84% 78% |  9.5%   | 1 Minimal
|   2     -3.27    .06   |  -.73  -2.98   1.80 | -3.14  | 78% 82% |  2.9%   | 2 Limited
|   3      1.79    .03   |  4.74   1.80   7.70 |  1.79  | 85% 83% |  1.6%   | 3 Adequate
|   4      7.69    .06   |( 8.79)  7.70  +INF  |  7.69  | 46% 45% | -28.2%  | 4 Superior
+--------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 7 Item and Threshold Difficulty

```
+----------------------------------------------------------------------------+
|ENTRY   RAW                      |  INFIT   | OUTFIT  |SCORE|        |       |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|--------------------------------+----------+---------+-----+--------+--------|
|    1  23821   8677    -.53A   .03| .57  -9.9| .47  -9.9| .89 |   -.03 | P1D1 0 |
|    2  23530   8677    -.43A   .02| .53  -9.9| .42  -9.9| .91 |   -.02 | P1D2 0 |
|    3  23214   8677    -.24A   .03| .49  -9.9| .37  -9.9| .90 |    .01 | P1D3 0 |
|    4  23241   8677    -.31A   .02| .52  -9.9| .41  -9.9| .91 |   -.01 | P1D4 0 |
|    5  22337   8677     .04A   .02| .72  -9.9| .60  -9.9| .88 |    .05 | P1D5 0 |
|--------------------------------+----------+---------+-----+--------+--------|
| MEAN  23229.  8677.    -.29   .02| .57  -9.9| .45  -9.9|     |        |        |
| S.D.    497.     1.     .19   .00| .08    .0| .08    .0|     |        |        |
+----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1
Domain ITEM DIFFICULTY MEASURE OF -.53 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
| LABEL SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+-----------+|--------+--------|
|   0   0      0    0 |            |  .00   .00 || NONE A |( -6.51)| 0 Unscorable
|   1   1    213    2 |-4.32 -3.01 |  .25   .18 || -4.61A | -4.81  | 1 Minimal
|   2   2   2312   27 | -.77  -.53 |  .73   .65 || -3.95A | -1.91  | 2 Limited
|   3   3   5624   65 | 3.29  3.11 |  .72   .64 ||  1.11A |  3.75  | 3 Adequate
|   4   4    528    6 | 7.50  8.23 |  .43   .23 ||  7.44A |( 8.01) | 4 Superior
+------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.|COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+--------------------+---------+---------+---------|
|   0       NONE        |( -6.51) -INF   -5.75|         |  0%   0%|   56.7  | 0 Unscorable
|   1      -5.14    .15 | -4.81  -5.75  -3.89 |  -5.46  | 87%  80%|   8.8%  | 1 Minimal
|   2      -4.48    .08 | -1.91  -3.89   .59  |  -4.17  | 88%  72%|  -1.8%  | 2 Limited
|   3        .58    .04 |  3.75   .59   6.92  |    .58  | 87%  95%|   4.0%  | 3 Adequate
|   4       6.91    .05 |( 8.01)  6.92  +INF  |   6.91  | 87%  68%| -20.1%  | 4 Superior
+--------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P1D2
Domain ITEM DIFFICULTY MEASURE OF -.43 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0   0      0   0 |            |  .00   .00 || NONE  A |( -6.57)| 0 Unscorable
|  1   1    260   3 |-4.23 -2.94 |  .26   .17 || -4.84A |  -4.73 | 1 Minimal
|  2   2   2545  29 | -.60  -.33 |  .63   .52 || -3.76A |  -1.62 | 2 Limited
|  3   3   5308  61 | 3.42  3.22 |  .66   .58 ||  1.33A |   3.87 | 3 Adequate
|  4   4    564   6 | 7.38  7.90 |  .46   .29 ||  7.26A |( 7.93) | 4 Superior
+------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.|COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+--------------------+---------+---------+---------|
|   0       NONE        |( -6.57) -INF   -5.76|         |  0%   0%|   58.2  | 0 Unscorable
|   1      -5.27    .15 | -4.73  -5.76  -3.72 |  -5.51  | 83%  81%|   6.9%  | 1 Minimal
|   2      -4.19    .08 | -1.62  -3.72   .91  |  -3.96  | 85%  79%|  -.6%   | 2 Limited
|   3        .90    .04 |  3.87   .91   6.84  |    .90  | 87%  93%|   3.5%  | 3 Adequate
|   4       6.83    .05 |( 7.93)  6.84  +INF  |   6.83  | 87%  63%| -17.6%  | 4 Superior
+--------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3 P1D3
Domain ITEM DIFFICULTY MEASURE OF -.24 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------+
|  0   0      0   0 |            |  .00   .00 || NONE  A |( -6.63)| 0 Unscorable
|  1   1    312   4 |-4.10 -2.88 |  .27   .18 || -5.15A |  -4.65 | 1 Minimal
|  2   2   2499  29 | -.59  -.28 |  .57   .41 || -3.66A |  -1.49 | 2 Limited
|  3   3   5560  64 | 3.59  3.26 |  .65   .60 ||  1.13A |   4.16 | 3 Adequate
|  4   4    306   4 | 7.86 10.82 |  .43   .22 ||  7.67A |( 8.53) | 4 Superior
+------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.|COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+--------------------+---------+---------+---------|
|   0       NONE        |( -6.63) -INF   -5.77|         |  0%   0%|   59.5  | 0 Unscorable
|   1      -5.39    .14 | -4.65  -5.77  -3.55 |  -5.56  | 95%  77%|   5.3%  | 1 Minimal
|   2      -3.90    .07 | -1.49  -3.55   .91  |  -3.73  | 87%  83%|  -.7%   | 2 Limited
|   3        .89    .04 |  4.16   .91   7.43  |    .90  | 92%  93%|   4.5%  | 3 Adequate
|   4       7.43    .06 |( 8.53)  7.43  +INF  |   7.43  | 64%  86%| -37.0%  | 4 Superior
+--------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF -.31 ADDED TO MEASURES
+-----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|   0   0      0   0|            |  .00   .00 || NONE  A |( -6.69)| 0 Unscorable
|   1   1    363   4| -4.00 -2.80|  .27   .16 || -5.17A |  -4.57 | 1 Minimal
|   2   2   2637  30|  -.40  -.14|  .56   .43 || -3.35A |  -1.27 | 2 Limited
|   3   3   5104  59|  3.53  3.29|  .67   .62 ||  1.41A |   3.95 | 3 Adequate
|   4   4    573   7|  7.16  7.81|  .58   .38 ||  7.11A |( 7.90) | 4 Superior
+-----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+---------------------+---------+---------+---------|
|   0       NONE          |( -6.69) -INF  -5.79 |         |  0%   0% |  59.6   | 0 Unscorable
|   1      -5.48    .14    |  -4.57 -5.79  -3.38 |  -5.61  | 96%  67% |   4.6%  | 1 Minimal
|   2      -3.66    .07    |  -1.27 -3.38   1.11 |  -3.54  | 85%  77% |    .3%  | 2 Limited
|   3       1.10    .03    |   3.95  1.11   6.81 |   1.11  | 84%  93% |   3.1%  | 3 Adequate
|   4       6.80    .05    |(  7.90) 6.81  +INF  |   6.80  | 72%  52% | -17.0%  | 4 Superior
+----------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF .04 ADDED TO MEASURES
+-----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|   0   0      0   0|            |  .00   .00 || NONE  A |( -6.78)| 0 Unscorable
|   1   1    463   5| -3.53 -2.68|  .49   .38 || -5.65A |  -4.44 | 1 Minimal
|   2   2   3076  35|   .12   .22|  .74   .55 || -3.30A |   -.81 | 2 Limited
|   3   3   4830  56|  3.84  3.53|  .93   .93 ||  1.58A |   4.52 | 3 Adequate
|   4   4    308   4|  7.05 10.49|  .84   .68 ||  7.37A |( 8.51) | 4 Superior
+-----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE    |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE   S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+---------------------+---------+---------+---------|
|   0       NONE          |( -6.78) -INF  -5.82 |         |  0%   0% |  61.6   | 0 Unscorable
|   1      -5.61    .14    |  -4.44 -5.82  -3.07 |  -5.69  | 86%  76% |   1.7%  | 1 Minimal
|   2      -3.26    .06    |   -.81 -3.07   1.63 |  -3.18  | 78%  80% |   2.7%  | 2 Limited
|   3       1.62    .03    |   4.52  1.63   7.42 |   1.62  | 85%  82% |   3.1%  | 3 Adequate
|   4       7.41    .06    |(  8.51) 7.42  +INF  |   7.41  | 37%  49% | -35.9%  | 4 Superior
+----------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 8 Item and Threshold Difficulty

```
+----------------------------------------------------------------------------+
|ENTRY   RAW                   |  INFIT  |  OUTFIT |SCORE|        |        |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|------------------------------+---------+---------+-----+--------+--------|
|    1  22963   8500    -.18A    .03| .68  -9.9| .55  -9.9| .88 |   -.02 | P1D1  0|
|    2  22965   8500    -.20A    .02| .55  -9.9| .43  -9.9| .90 |   -.02 | P1D2  0|
|    3  22772   8500    -.05A    .03| .50  -9.9| .37  -9.9| .90 |    .00 | P1D3  0|
|    4  22668   8500    -.05A    .02| .54  -9.9| .41  -9.9| .90 |    .00 | P1D4  0|
|    5  22215   8500     .12A    .02| .69  -9.9| .56  -9.9| .88 |    .03 | P1D5  0|
|------------------------------+---------+---------+-----+--------+--------|
| MEAN  22717.  8500.    -.07    .02| .59  -9.9| .47  -9.9|     |        |        |
| S.D.    276.     0.     .11    .00| .08   .0| .08   .0|     |        |        |
+----------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.18 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00 ||  NONE A |( -6.19)| 0 Unscorable
|   1    1    224   3| -3.88 -2.57|  .35   .25 || -4.63A  | -4.52  | 1 Minimal
|   2    2   2520  30|  -.30  -.19|  .86   .74 || -4.04A  | -1.54  | 2 Limited
|   3    3   5325  63|  3.56  3.42|  .86   .76 ||  1.24A  |  4.16  | 3 Adequate
|   4    4    431   5|  7.63  8.54|  .47   .25 ||  7.44A  |( 8.36)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------+
|   0     NONE          |( -6.19) -INF   -5.44|         |  0%   0% |  57.3   | 0 Unscorable
|   1    -4.81    .15   | -4.52  -5.44  -3.61 |  -5.14  | 75%  75% | 12.8%   | 1 Minimal
|   2    -4.22    .08   | -1.54  -3.61   1.07 |  -3.89  | 77%  73% |  -1.2%  | 2 Limited
|   3     1.06    .04   |  4.16   1.07   7.27 |   1.06  | 86%  89% |   3.6%  | 3 Adequate
|   4     7.26    .06   |( 8.36)  7.27  +INF  |   7.26  | 80%  63% | -22.0%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF -.20 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00 ||  NONE A |( -6.23)| 0 Unscorable
|   1    1    251   3| -3.90 -2.54|  .31   .18 || -4.70A  | -4.48  | 1 Minimal
|   2    2   2564  30|  -.37  -.13|  .65   .53 || -3.86A  | -1.43  | 2 Limited
|   3    3   5154  61|  3.61  3.43|  .68   .60 ||  1.33A  |  4.08  | 3 Adequate
|   4    4    531   6|  7.44  7.80|  .49   .29 ||  7.22A  |( 8.12)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------+
|   0     NONE          |( -6.23) -INF   -5.46|         |  0%   0% |  57.1   | 0 Unscorable
|   1    -4.90    .15   | -4.48  -5.46  -3.52 |  -5.18  | 85%  75% | 12.5%   | 1 Minimal
|   2    -4.06    .08   | -1.43  -3.52   1.14 |  -3.78  | 84%  79% |  -.6%   | 2 Limited
|   3     1.13    .04   |  4.08   1.14   7.03 |   1.13  | 86%  93% |  2.9%   | 3 Adequate
|   4     7.02    .05   |( 8.12)  7.03  +INF  |   7.02  | 86%  55% | -16.2%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF -.05 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00 ||  NONE A |( -6.23)| 0 Unscorable
|   1    1    254   3| -3.96 -2.55|  .26   .14 || -4.85A  | -4.47  | 1 Minimal
|   2    2   2482  29|  -.48  -.17|  .59   .41 || -3.98A  | -1.46  | 2 Limited
|   3    3   5502  65|  3.75  3.44|  .66   .60 ||  1.09A  |  4.37  | 3 Adequate
|   4    4    262   3|  7.99 11.11|  .45   .23 ||  7.74A  |( 8.79)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+----------------------------------------------------------------------+
|CATEGORY   STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -6.23) -INF  -5.45 |         |  0%   0% |   58.4  | 0 Unscorable
|   1      -4.90   .15  | -4.47  -5.45  -3.51 |  -5.18  | 89%  78% |   11.4% | 1 Minimal
|   2      -4.03   .08  | -1.46  -3.51   1.05 |  -3.76  | 86%  83% |   -1.3% | 2 Limited
|   3       1.04   .04  |  4.37   1.05   7.69 |   1.05  | 92%  92% |    4.4% | 3 Adequate
|   4       7.69   .06  |( 8.79)  7.69  +INF  |   7.69  | 64%  83% |  -38.5% | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF -.05 ADDED TO MEASURES

```
+----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------|
|  0   0      0   0 |            |  .00   .00 || NONE A  |( -6.30)| 0 Unscorable
|  1   1    311   4 |-3.81 -2.49 |  .28   .15 || -4.99A  | -4.38  | 1 Minimal
|  2   2   2611  31 | -.29  -.02 |  .58   .41 || -3.67A  | -1.22  | 2 Limited
|  3   3   5177  61 | 3.77  3.49 |  .69   .63 ||  1.29A  |  4.28  | 3 Adequate
|  4   4    401   5 | 7.41  8.81 |  .63   .40 ||  7.37A  |( 8.42) | 4 Superior
+----------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY   STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -6.30) -INF  -5.46 |         |  0%   0% |   59.0  | 0 Unscorable
|   1      -5.04   .15  | -4.38  -5.46  -3.32 |  -5.24  | 91%  65% |    9.4% | 1 Minimal
|   2      -3.72   .07  | -1.22  -3.32   1.25 |  -3.53  | 84%  77% |   -.3%  | 2 Limited
|   3       1.24   .04  |  4.28   1.25   7.33 |   1.25  | 86%  92% |    3.4% | 3 Adequate
|   4       7.32   .06  |( 8.42)  7.33  +INF  |   7.32  | 63%  54% |  -24.3% | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF .12 ADDED TO MEASURES

```
+----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------|
|  0   0      0   0 |            |  .00   .00 || NONE A  |( -6.38)| 0 Unscorable
|  1   1    380   4 |-3.41 -2.41 |  .49   .34 || -5.29A  | -4.29  | 1 Minimal
|  2   2   2848  34 |  .06   .19 |  .73   .54 || -3.53A  |  -.92  | 2 Limited
|  3   3   4949  58 | 3.89  3.62 |  .89   .86 ||  1.43A  |  4.53  | 3 Adequate
|  4   4    323   4 | 7.23  9.73 |  .77   .57 ||  7.39A  |( 8.61) | 4 Superior
+----------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY   STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0       NONE        |( -6.38) -INF  -5.49 |         |  0%   0% |   59.9  | 0 Unscorable
|   1      -5.17   .14  | -4.29  -5.49  -3.11 |  -5.31  | 79%  78% |    7.3% | 1 Minimal
|   2      -3.41   .07  |  -.92  -3.11   1.56 |  -3.28  | 84%  66% |    1.1% | 2 Limited
|   3       1.55   .03  |  4.53   1.56   7.52 |   1.55  | 80%  90% |    3.1% | 3 Adequate
|   4       7.51   .06  |( 8.61)  7.52  +INF  |   7.51  | 44%  47% |  -30.9% | 4 Superior
+----------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 9 Item and Threshold Difficulty

```
+-----------------------------------------------------------------------+
|ENTRY   RAW                        |    INFIT  | OUTFIT |SCORE|         |
|NUMBER  SCORE   COUNT   MEASURE  ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR.|DISPLACE| Domai G|
|-----------------------------------+---------+---------+-----+--------+--------|
|     1  22511   8441     -.11A    .02| .75 -9.9| .63 -9.9| .88|     .00| P1D1  0|
|     2  22829   8441     -.23A    .02| .55 -9.9| .45 -9.9| .90|    -.03| P1D2  0|
|     3  22434   8441     -.01A    .03| .50 -9.9| .38 -9.9| .90|     .01| P1D3  0|
|     4  22589   8441     -.09A    .02| .53 -9.9| .42 -9.9| .91|    -.02| P1D4  0|
|     5  21872   8441      .16A    .02| .69 -9.9| .58 -9.9| .89|     .03| P1D5  0|
|-----------------------------------+---------+---------+-----+--------+--------|
| MEAN  22447.   8441.    -.06    .02| .60 -9.9| .49 -9.9|     |        |        |
| S.D.    317.      1.     .13    .00| .10   .0| .10   .0|     |        |        |
+-----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.11 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY      OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ ||MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------|
|   0    0      0    0|            |  .00    .00|| NONE  A |( -6.10)| 0 Unscorable
|   1    1    256    3| -3.46 -2.37|  .55    .39|| -4.63A | -4.39  | 1 Minimal
|   2    2   2783   33|  -.09  -.03|  .90    .79|| -3.92A | -1.32  | 2 Limited
|   3    3   4919   58|  3.53  3.39|  .91    .83||  1.43A |  4.17  | 3 Adequate
|   4    4    483    6|  7.37  8.21|  .52    .35||  7.12A |( 8.11)| 4 Superior
+------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |    SCORE-TO-MEASURE  |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY|M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+---------+---------|
|   0     NONE          |( -6.10) -INF  -5.34|        |  0%   0%|  59.2  | 0 Unscorable
|   1    -4.74    .15   | -4.39  -5.34  -3.45| -5.05  | 77%  64%|  14.5% | 1 Minimal
|   2    -4.03    .08   | -1.32  -3.45   1.32| -3.73  | 78%  71%|   -.5% | 2 Limited
|   3     1.32    .03   |  4.17   1.32   7.02|  1.32  | 82%  89%|   3.5% | 3 Adequate
|   4     7.01    .05   |( 8.11)  7.02  +INF |  7.01  | 79%  61%| -20.4% | 4 Superior
+---------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF -.23 ADDED TO MEASURES

```
+------------------------------------------------------------------+
|CATEGORY      OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ   MNSQ ||MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------|
|   0    0      0    0|            |  .00    .00|| NONE  A |( -6.04)| 0 Unscorable
|   1    1    214    3| -3.94 -2.43|  .25    .14|| -4.38A | -4.44  | 1 Minimal
|   2    2   2634   31|  -.41  -.16|  .65    .56|| -4.04A | -1.53  | 2 Limited
|   3    3   5025   60|  3.50  3.31|  .68    .59||  1.36A |  3.99  | 3 Adequate
|   4    4    568    7|  7.30  7.64|  .49    .33||  7.07A |( 7.94)| 4 Superior
+------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |    SCORE-TO-MEASURE  |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY|M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+---------+---------|
|   0     NONE          |( -6.04) -INF  -5.33|        |  0%   0%|  58.3  | 0 Unscorable
|   1    -4.61    .15   | -4.44  -5.33  -3.57| -5.00  | 93%  71%|  15.7% | 1 Minimal
|   2    -4.27    .08   | -1.53  -3.57   1.13| -3.88  | 83%  82%|  -1.4% | 2 Limited
|   3     1.13    .04   |  3.99   1.13   6.85|  1.13  | 86%  91%|   3.5% | 3 Adequate
|   4     6.84    .05   |( 7.94)  6.85  +INF |  6.84  | 85%  56%| -15.5% | 4 Superior
+---------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF -.01 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+------------++---------+--------+
|   0    0     0    0 |            |  .00   .00 ||  NONE A |( -6.10)| 0 Unscorable
|   1    1   261    3 | -3.82 -2.39|  .28   .17 || -4.74A  |  -4.37 | 1 Minimal
|   2    2  2641   31 |  -.40  -.10|  .57   .42 || -3.97A  |  -1.37 | 2 Limited
|   3    3  5265   62 |  3.73  3.38|  .66   .60 ||  1.18A  |   4.35 | 3 Adequate
|   4    4   274    3 |  7.81 11.05|  .47   .28 ||  7.54A  |( 8.63)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+--------------------+---------+----------+---------|
|    0      NONE          |( -6.10) -INF  -5.33|         |  0%   0% |  60.4   | 0 Unscorable
|    1     -4.75   .14   | -4.37  -5.33  -3.42| -5.05   | 92%  75% | 13.1%   | 1 Minimal
|    2     -3.98   .07   | -1.37  -3.42   1.18| -3.69   | 87%  83% | -1.3%   | 2 Limited
|    3      1.17   .03   |  4.35   1.18   7.54|  1.17   | 91%  92% |  4.8%   | 3 Adequate
|    4      7.53   .06   |( 8.63)  7.54  +INF |  7.53   | 60%  82% |-38.9%   | 4 Superior
+----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF -.09 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+------------++---------+--------+
|   0    0     0    0 |            |  .00   .00 ||  NONE A |( -6.15)| 0 Unscorable
|   1    1   307    4 | -3.70 -2.37|  .30   .18 || -4.77A  |  -4.29 | 1 Minimal
|   2    2  2590   31 |  -.34  -.06|  .57   .44 || -3.63A  |  -1.25 | 2 Limited
|   3    3  5074   60 |  3.61  3.35|  .67   .61 ||  1.26A  |   4.11 | 3 Adequate
|   4    4   470    6 |  7.30  8.28|  .59   .40 ||  7.14A  |( 8.15)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+--------------------+---------+----------+---------|
|    0      NONE          |( -6.15) -INF  -5.33|         |  0%   0% |  61.1   | 0 Unscorable
|    1     -4.86   .14   | -4.29  -5.33  -3.28| -5.09   | 92%  63% | 11.3%   | 1 Minimal
|    2     -3.72   .07   | -1.25  -3.28   1.18| -3.50   | 82%  81% | -1.3%   | 2 Limited
|    3      1.17   .04   |  4.11   1.18   7.06|  1.17   | 87%  91% |  3.9%   | 3 Adequate
|    4      7.05   .05   |( 8.15)  7.06  +INF |  7.05   | 71%  56% |-21.0%   | 4 Superior
+----------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5

Domain ITEM DIFFICULTY MEASURE OF .16 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|---------------------+------------+------------++---------+--------+
|   0    0     0    0 |            |  .00   .00 ||  NONE A |( -6.26)| 0 Unscorable
|   1    1   409    5 | -3.23 -2.27|  .51   .38 || -5.21A  |  -4.17 | 1 Minimal
|   2    2  2981   35 |   .14   .26|  .74   .59 || -3.44A  |   -.80 | 2 Limited
|   3    3  4703   56 |  3.83  3.55|  .86   .83 ||  1.49A  |   4.48 | 3 Adequate
|   4    4   348    4 |  7.18  9.57|  .72   .57 ||  7.15A  |( 8.41)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

2002 PSSA Grade 6 and 9 Writing

```
+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+----------+---------+
|   0      NONE         ( -6.26) -INF  -5.37 |         |  0%   0% |  62.5   | 0 Unscorable
|   1     -5.05    .14  | -4.17  -5.37  -2.99 | -5.19   | 82%  73% |   7.5%  | 1 Minimal
|   2     -3.28    .06  |  -.80  -2.99   1.66 | -3.15   | 83%  66% |   1.2%  | 2 Limited
|   3      1.65    .03  |  4.48   1.66   7.32 |  1.65   | 79%  89% |   3.4%  | 3 Adequate
|   4      7.31    .06  ( 8.41)  7.32  +INF  |  7.31   | 49%  52% | -30.8%  | 4 Superior
+------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 10 Item and Threshold Difficulty

```
+--------------------------------------------------------------------------------+
|ENTRY    RAW                        |  INFIT   OUTFIT |SCORE|        |         |
|NUMBER  SCORE   COUNT   MEASURE  ERROR|MNSQ  ZSTD MNSQ ZSTD|CORR.|DISPLACE| Domai G |
|------------------------------------+-----------------+-----+--------+---------|
|    1  23193  8493    -.04A    .02| .67  -9.9  .55 -9.9| .88|    -.01| P1D1  0 |
|    2  23582  8493    -.21A    .02| .54  -9.9  .44 -9.9| .90|    -.04| P1D2  0 |
|    3  23199  8493     .00A    .03| .50  -9.9  .38 -9.9| .89|     .01| P1D3  0 |
|    4  23064  8493     .01A    .02| .53  -9.9  .42 -9.9| .90|     .00| P1D4  0 |
|    5  22472  8493     .22A    .02| .65  -9.9  .54 -9.9| .89|     .04| P1D5  0 |
|------------------------------------+-----------------+-----+--------+---------|
| MEAN 23102.  8493.    .00    .02| .58  -9.9  .46 -9.9|     |        |         |
| S.D.   360.     0.    .14    .00| .07    .0  .07   .0|     |        |         |
+--------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1
Domain ITEM DIFFICULTY MEASURE OF -.04 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ |MEASURE | MEASURE |
|-------------------+------------+------------++--------+---------|
|  0   0     0    0|            |  .00   .00|| NONE A ( -5.61)| 0 Unscorable
|  1   1   219    3| -3.40 -2.07| .41   .30|| -4.09A   -4.07 | 1 Minimal
|  2   2  2338   28|  -.29  -.15| .82   .67|| -3.96A   -1.48 | 2 Limited
|  3   3  5446   64|  3.47  3.31| .85   .80||   .95A    3.99 | 3 Adequate
|  4   4   490    6|  7.36  8.31| .53   .30||  7.11A ( 8.17)| 4 Superior
+-----------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+--------------------+---------+----------+---------+
|   0      NONE         ( -5.61) -INF  -4.92 |         |  0%   0% |  65.5   | 0 Unscorable
|   1     -4.13    .14  | -4.07  -4.92  -3.24 | -4.58   | 82%  70% |  19.2%  | 1 Minimal
|   2     -4.00    .08  | -1.48  -3.24    .93 | -3.56   | 78%  71% |  -1.0%  | 2 Limited
|   3       .91    .04  |  3.99    .93   7.08 |   .92   | 85%  90% |   3.6%  | 3 Adequate
|   4      7.07    .05  ( 8.17)  7.08  +INF  |  7.07   | 74%  61% | -21.5%  | 4 Superior
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P1D2

Domain ITEM DIFFICULTY MEASURE OF -.21 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ |MEASURE | MEASURE |
|-------------------+------------+------------++--------+---------|
|  0   0     0    0|            |  .00   .00|| NONE A ( -5.57)| 0 Unscorable
|  1   1   179    2| -3.74 -2.09| .20   .11|| -3.77A   -4.14 | 1 Minimal
|  2   2  2223   26|  -.55  -.27| .66   .56|| -4.07A   -1.68 | 2 Limited
|  3   3  5407   64|  3.37  3.22| .66   .60||   .95A    3.71 | 3 Adequate
|  4   4   684    8|  7.14  7.24| .52   .32||  6.89A ( 7.78)| 4 Superior
+-----------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+-------------------+---------+----------+---------|
|   0      NONE           |( -5.57) -INF   -4.93|         |  0%   0% |  63.1   | 0 Unscorable
|   1     -3.98    .14    | -4.14  -4.93  -3.36 | -4.55   | 79%  83% |  23.2%  | 1 Minimal
|   2     -4.28    .09    | -1.68  -3.36    .75 | -3.72   | 82%  78% |  -1.5%  | 2 Limited
|   3       .74    .04    |  3.71    .75   6.69 |   .74   | 89%  90% |   3.0%  | 3 Adequate
|   4      6.68    .05    |( 7.78)  6.69  +INF  |  6.68   | 77%  79% | -12.3%  | 4 Superior
+----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .00 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|  0    0     0   0 |            |  .00   .00 || NONE A  |( -5.63)| 0 Unscorable
|  1    1   225   3 | -3.64 -2.06|  .22   .13 || -4.16A  | -4.07  | 1 Minimal
|  2    2  2170  26 |  -.57  -.25|  .58   .42 || -3.96A  | -1.56  | 2 Limited
|  3    3  5758  68 |  3.56  3.28|  .67   .66 ||   .71A  |  4.06  | 3 Adequate
|  4    4   340   4 |  7.70 10.04|  .48   .24 ||  7.41A  |( 8.51) | 4 Superior
+------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+-------------------+---------+----------+---------|
|   0      NONE A        |( -5.63) -INF   -4.93|         |  0%   0% |  65.3   | 0 Unscorable
|   1     -4.16A   .14    | -4.07  -4.93  -3.23 | -4.59   | 93%  77% |  20.0%  | 1 Minimal
|   2     -3.96A   .08    | -1.56  -3.23    .73 | -3.54   | 84%  82% |  -1.8%  | 2 Limited
|   3       .71A   .04    |  4.06    .73   7.41 |   .72   | 92%  92% |   4.3%  | 3 Adequate
|   4      7.41A   .06    |( 8.51)  7.41  +INF  |  7.41   | 68%  82% | -33.7%  | 4 Superior
+----------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .01 ADDED TO MEASURES

```
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|  0    0     0   0 |            |  .00   .00 || NONE A  |( -5.65)| 0 Unscorable
|  1    1   253   3 | -3.54 -2.05|  .25   .14 || -4.25A  | -4.03  | 1 Minimal
|  2    2  2398  28 |  -.37  -.07|  .56   .40 || -3.81A  | -1.34  | 2 Limited
|  3    3  5353  63 |  3.62  3.35|  .69   .66 ||  1.00A  |  4.04  | 3 Adequate
|  4    4   489   6 |  7.19  8.29|  .65   .43 ||  7.06A  |( 8.17) | 4 Superior
+------------------------------------------------------------------
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------------+
|CATEGORY     STRUCTURE    | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-------------------------+-------------------+---------+----------+---------|
|   0      NONE          |( -5.65) -INF   -4.92|         |  0%   0% |  66.3   | 0 Unscorable
|   1     -4.24    .14    | -4.03  -4.92  -3.15 | -4.61   | 94%  69% |  17.5%  | 1 Minimal
|   2     -3.80    .07    | -1.34  -3.15   1.03 | -3.44   | 86%  76% |   -.6%  | 2 Limited
|   3      1.01    .04    |  4.04   1.03   7.08 |  1.02   | 86%  93% |   3.4%  | 3 Adequate
|   4      7.07    .05    |( 8.17)  7.08  +INF  |  7.07   | 62%  52% | -21.4%  | 4 Superior
+----------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5
Domain ITEM DIFFICULTY MEASURE OF .22 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+-------+
|  0    0      0   0|            .00   .00|| NONE  A |( -5.74)| 0 Unscorable
|  1    1    339   4| -3.17 -1.99  .42   .30|| -4.66A  | -3.91 | 1 Minimal
|  2    2   2720  32|   .06   .21  .70   .51|| -3.59A  |  -.95 | 2 Limited
|  3    3   5043  59|  3.78  3.52  .84   .83||  1.20A  |  4.35 | 3 Adequate
|  4    4    391   5|  7.15  9.17  .73   .53||  7.05A  |( 8.37)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |  SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+-------------------+---------+----------+---------
|   0      NONE         |( -5.74) -INF   -4.93|         |   0%  0% |  69.1  | 0 Unscorable
|   1     -4.44   .14   | -3.91 -4.93  -2.91| -4.68   |  85%  75%| 12.3%  | 1 Minimal
|   2     -3.37   .07   |  -.95 -2.91   1.44| -3.14   |  77%  83%|  1.5%  | 2 Limited
|   3      1.42   .03   |  4.35  1.44   7.28|  1.43   |  87%  84%|  3.0%  | 3 Adequate
|   4      7.27   .06   |( 8.37) 7.28  +INF|  7.27   |  48%  50%|-28.4%  | 4 Superior
+----------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 11 Item and Threshold Difficulty

```
+--------------------------------------------------------------------------+
|ENTRY  RAW                       | INFIT   | OUTFIT  |SCORE|        |       |
|NUMBER SCORE  COUNT  MEASURE ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR.|DISPLACE| Domai G|
|---------------------------------+---------+---------+-----+--------+--------
|   1  23321  8854    .08A   .03| .64 -9.9| .50 -9.9| .88 |  -.05  | P1D1 0
|   2  22699  8854    .27A   .02| .55 -9.9| .42 -9.9| .91 |   .01  | P1D2 0
|   3  22318  8854    .51A   .03| .51 -9.9| .36 -9.9| .90 |   .05  | P1D3 0
|   4  22890  8854    .29A   .02| .51 -9.9| .37 -9.9| .91 |  -.02  | P1D4 0
|   5  22485  8854    .40A   .02| .67 -9.9| .53 -9.9| .89 |   .01  | P1D5 0
|---------------------------------+---------+---------+-----+--------+--------
| MEAN 22743. 8854.    .31   .02| .58 -9.9| .44 -9.9|     |        |
| S.D.   348.    0.    .14   .00| .07  .0| .07  .0|     |        |
+--------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF .08 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+-------+
|  0    0      0   0|            .00   .00|| NONE  A |( -6.15)| 0 Unscorable
|  1    1    247   3| -3.95 -2.53  .31   .21|| -4.82A  | -4.52 | 1 Minimal
|  2    2   3085  35|  -.27  -.12  .79   .69|| -4.37A  | -1.39 | 2 Limited
|  3    3   5184  59|  3.98  3.81  .80   .64||  1.37A  |  4.68 | 3 Adequate
|  4    4    338   4|  8.22  9.24  .47   .24||  7.82A  |( 9.00)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |  SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+-------------------+---------+----------+---------
|   0      NONE         |( -6.15) -INF   -5.42|         |   0%  0% |  68.7  | 0 Unscorable
|   1     -4.74   .13   | -4.52 -5.42  -3.62| -5.11   |  81%  75%| 14.8%  | 1 Minimal
|   2     -4.29   .08   | -1.39 -3.62   1.45| -3.93   |  78%  85%| -1.1%  | 2 Limited
|   3      1.45   .04   |  4.68  1.45   7.90|  1.45   |  88%  86%|  3.5%  | 3 Adequate
|   4      7.90   .06   |( 9.00) 7.90  +INF|  7.90   |  81%  52%|-23.5%  | 4 Superior
+----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .27 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0   0      0   0 |             .00   .00 || NONE  A |( -6.26)| 0 Unscorable
|   1   1    348   4 |-3.81 -2.43| .31   .16 || -5.25A  | -4.38  | 1 Minimal
|   2   2   3501  40 |  .04   .18| .66   .53 || -4.05A  |  -.90  | 2 Limited
|   3   3   4671  53 | 4.27  4.05| .68   .56 ||  1.68A  |  4.92  | 3 Adequate
|   4   4    334   4 | 8.23  9.22| .46   .26 ||  7.62A  |( 8.99)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|---------------------+---------------------+---------+---------+---------|
|   0     NONE          |( -6.26) -INF   -5.43|         |  0%   0%|  71.2   | 0 Unscorable
|   1     -4.98    .13  | -4.38  -5.43  -3.34 | -5.20   | 86%  74%|  11.4%  | 1 Minimal
|   2     -3.78    .07  |  -.90  -3.34   1.95 | -3.57   | 87%  81%|   1.5%  | 2 Limited
|   3      1.95    .03  |  4.92   1.95   7.90 |  1.95   | 85%  92%|   1.9%  | 3 Adequate
|   4      7.89    .06  |( 8.99)  7.90  +INF  |  7.89   | 85%  55%| -23.6%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .51 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0   0      0   0 |             .00   .00 || NONE  A |( -6.30)| 0 Unscorable
|   1   1    397   4 |-3.79 -2.38| .27   .12 || -5.57A  | -4.32  | 1 Minimal
|   2   2   3576  40 |  .11   .27| .59   .42 || -4.08A  |  -.75  | 2 Limited
|   3   3   4755  54 | 4.50  4.15| .65   .55 ||  1.54A  |  5.34  | 3 Adequate
|   4   4    126   1 | 8.68 15.58| .49   .26 ||  8.11A  |( 9.72)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|---------------------+---------------------+---------+---------+---------|
|   0     NONE          |( -6.30) -INF   -5.44|         |  0%   0%|  73.2   | 0 Unscorable
|   1     -5.06    .13  | -4.32  -5.44  -3.20 | -5.23   | 98%  74%|   9.8%  | 1 Minimal
|   2     -3.57    .06  |  -.75  -3.20   2.06 | -3.40   | 90%  82%|   2.1%  | 2 Limited
|   3      2.05    .03  |  5.34   2.06   8.62 |  2.05   | 86%  95%|   2.4%  | 3 Adequate
|   4      8.62    .07  |( 9.72)  8.62  +INF  |  8.62   | 56%  38%| -53.9%  | 4 Superior
+--------------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4

Domain ITEM DIFFICULTY MEASURE OF .29 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|   0   0      0   0 |             .00   .00 || NONE  A |( -6.28)| 0 Unscorable
|   1   1    388   4 |-3.77 -2.41| .28   .15 || -5.33A  | -4.31  | 1 Minimal
|   2   2   3161  36 | -.14   .07| .58   .43 || -3.87A  |  -.94  | 2 Limited
|   3   3   5040  57 | 4.21  3.93| .66   .56 ||  1.37A  |  4.89  | 3 Adequate
|   4   4    265   3 | 8.26 10.26| .54   .29 ||  7.83A  |( 9.22)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0     NONE          |( -6.28) -INF  -5.43 |         |  0%   0% |  72.9   | 0 Unscorable
|   1    -5.04    .13   | -4.31  -5.43  -3.21 |  -5.22  | 91%  70% |  10.1%  | 1 Minimal
|   2    -3.58    .06   |  -.94  -3.21   1.67 |  -3.41  | 83%  86% |   -.3%  | 2 Limited
|   3     1.66    .03   |  4.89   1.67   8.12 |   1.66  | 89%  90% |   3.3%  | 3 Adequate
|   4     8.12    .07   |( 9.22)  8.12  +INF  |   8.12  | 66%  54% | -30.6%  | 4 Superior
+-----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5 P1D5
Domain ITEM DIFFICULTY MEASURE OF .40 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|--------------------+------------+------------++---------+---------|
|  0   0     0    0 |            |  .00   .00 || NONE  A |( -6.35) | 0 Unscorable
|  1   1   460    5 |-3.53 -2.33 |  .37   .22 || -5.55A  | -4.23   | 1 Minimal
|  2   2  3430   39 |  .23   .27 |  .78   .62 || -3.71A  |  -.65   | 2 Limited
|  3   3  4691   53 | 4.28  4.08 |  .86   .76 ||  1.58A  |  5.03   | 3 Adequate
|  4   4   273    3 | 8.04 10.05 |  .62   .39 ||  7.68A  |( 9.18)  | 4 Superior
+-------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0     NONE          |( -6.35) -INF  -5.45 |         |  0%   0% |  73.4   | 0 Unscorable
|   1    -5.15    .13   | -4.23  -5.45  -3.02 |  -5.28  | 91%  59% |   8.7%  | 1 Minimal
|   2    -3.31    .06   |  -.65  -3.02   1.99 |  -3.18  | 80%  76% |   1.7%  | 2 Limited
|   3     1.98    .03   |  5.03   1.99   8.09 |   1.98  | 81%  88% |   2.1%  | 3 Adequate
|   4     8.08    .06   |( 9.18)  8.09  +INF  |   8.08  | 59%  47% | -29.5%  | 4 Superior
+-----------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 12 Item and Threshold Difficulty

```
+------------------------------------------------------------------------------+
|ENTRY    RAW                    |   INFIT  |  OUTFIT  |SCORE|        |         |
|NUMBER  SCORE   COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G |
|--------------------------------+----------+----------+-----+--------+---------|
|    1  23067   8460    -.26A   .03| .60  -9.9| .47  -9.9| .89 |  -.06  | P1D1  0 |
|    2  22623   8460    -.12A   .03| .56  -9.9| .42  -9.9| .90 |  -.01  | P1D2  0 |
|    3  22118   8460     .16A   .03| .53  -9.9| .38  -9.9| .90 |   .05  | P1D3  0 |
|    4  22407   8460     .05A   .03| .53  -9.9| .37  -9.9| .90 |   .00  | P1D4  0 |
|    5  22246   8460     .08A   .02| .66  -9.9| .52  -9.9| .89 |   .01  | P1D5  0 |
|--------------------------------+----------+----------+-----+--------+---------|
| MEAN  22492.  8460.    -.02   .03| .58  -9.9| .43  -9.9|     |        |         |
| S.D.    333.     0.     .15   .00| .05   .0 | .06   .0 |     |        |         |
+------------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1 P1D1

Domain ITEM DIFFICULTY MEASURE OF -.26 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT|STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|--------------------+------------+------------++---------+---------|
|  0   0     0    0 |            |  .00   .00 || NONE  A |( -6.20) | 0 Unscorable
|  1   1   186    2 |-4.04 -2.64 |  .32   .22 || -4.50A  | -4.62   | 1 Minimal
|  2   2  2436   29 | -.60  -.38 |  .75   .66 || -4.21A  | -1.72   | 2 Limited
|  3   3  5343   63 | 3.64  3.49 |  .75   .63 ||  1.20A  |  4.10   | 3 Adequate
|  4   4   495    6 | 7.66  8.06 |  .48   .25 ||  7.51A  |( 8.35)  | 4 Superior
+-------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+--------+----------+---------|
|   0     NONE           |( -6.20) -INF   -5.49|        |  0%   0%|   55.1  | 0 Unscorable
|   1    -4.76   .15     | -4.62  -5.49  -3.76| -5.17  | 85%  72%|  12.6%  | 1 Minimal
|   2    -4.47   .08     | -1.72  -3.76    .95| -4.07  | 88%  73%|  -2.4%  | 2 Limited
|   3      .94   .04     |  4.10    .95   7.26|   .94  | 85%  96%|   3.8%  | 3 Adequate
|   4     7.25   .05     |( 8.35)  7.26  +INF |  7.25  | 90%  49%| -16.9%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2 P1D2
Domain ITEM DIFFICULTY MEASURE OF -.12 ADDED TO MEASURES

```
+----------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE A  |( -6.25)| 0 Unscorable
|  1    1    218   3| -4.10 -2.59|  .24   .11 || -4.75A  | -4.57  | 1 Minimal
|  2    2   2800  33|  -.34  -.13|  .66   .52 || -4.14A  | -1.41  | 2 Limited
|  3    3   4963  59|  3.86  3.67|  .70   .59 ||  1.49A  |  4.33  | 3 Adequate
|  4    4    479   6|  7.60  8.10|  .52   .32 ||  7.40A  |( 8.38)| 4 Superior
+----------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+--------+----------+---------|
|   0     NONE           |( -6.25) -INF   -5.50|        |  0%   0%|   56.2  | 0 Unscorable
|   1    -4.87   .15     | -4.57  -5.50  -3.65| -5.20  | 82%  78%|  10.5%  | 1 Minimal
|   2    -4.26   .08     | -1.41  -3.65   1.37| -3.93  | 86%  79%|    .3%  | 2 Limited
|   3     1.37   .04     |  4.33   1.37   7.29|  1.37  | 85%  93%|   2.6%  | 3 Adequate
|   4     7.28   .05     |( 8.38)  7.29  +INF |  7.28  | 84%  48%| -17.3%  | 4 Superior
+----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3 P1D3
Domain ITEM DIFFICULTY MEASURE OF .16 ADDED TO MEASURES

```
+----------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE A  |( -6.31)| 0 Unscorable
|  1    1    260   3| -4.03 -2.55|  .24   .11 || -5.16A  | -4.51  | 1 Minimal
|  2    2   2913  34|  -.25  -.02|  .60   .39 || -4.17A  | -1.23  | 2 Limited
|  3    3   5116  60|  4.14  3.79|  .69   .60 ||  1.35A  |  4.83  | 3 Adequate
|  4    4    171   2|  8.01 13.86|  .61   .39 ||  7.98A  |( 9.24)| 4 Superior
+----------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+----------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE |50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.   | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+--------+----------+---------|
|   0     NONE           |( -6.31) -INF   -5.51|        |  0%   0%|   57.4  | 0 Unscorable
|   1    -5.00   .15     | -4.51  -5.51  -3.51| -5.25  | 96%  77%|   8.5%  | 1 Minimal
|   2    -4.01   .07     | -1.23  -3.51   1.52| -3.76  | 91%  80%|   1.2%  | 2 Limited
|   3     1.51   .04     |  4.83   1.52   8.14|  1.51  | 87%  95%|   3.4%  | 3 Adequate
|   4     8.14   .07     |( 9.24)  8.14  +INF |  8.14  | 51%  35%| -49.5%  | 4 Superior
+----------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4  P1D4
Domain ITEM DIFFICULTY MEASURE OF .05 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE  A |( -6.33)| 0 Unscorable
|  1    1    282   3| -3.94 -2.53|  .26   .13 || -5.10A  | -4.46  | 1 Minimal
|  2    2   2689  32|  -.36  -.11|  .58   .39 || -3.92A  | -1.26  | 2 Limited
|  3    3   5209  62|  3.98  3.69|  .69   .60 ||  1.26A  |  4.56  | 3 Adequate
|  4    4    280   3|  7.85 10.37|  .60   .34 ||  7.76A  |( 8.91)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-------------------------------------------------------------------------+
|CATEGORY      STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL     MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+--------+---------+--------+
|   0       NONE       |( -6.33) -INF  -5.51 |         |  0%   0% |  57.7  | 0 Unscorable
|   1      -5.05   .15 |  -4.46  -5.51  -3.43 |  -5.27  | 94%  70% |  8.2%  | 1 Minimal
|   2      -3.87   .07 |  -1.26  -3.43   1.32 |  -3.66  | 85%  81% |  -.3%  | 2 Limited
|   3       1.31   .04 |   4.56   1.32   7.81 |   1.31  | 88%  92% |  3.6%  | 3 Adequate
|   4       7.81   .06 |( 8.91)  7.81  +INF  |   7.81  | 59%  58% |-33.3%  | 4 Superior
+-------------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5  P1D5
Domain ITEM DIFFICULTY MEASURE OF .08 ADDED TO MEASURES
+------------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------+
|  0    0      0   0|            |  .00   .00 || NONE  A |( -6.42)| 0 Unscorable
|  1    1    351   4| -3.57 -2.46|  .42   .28 || -5.28A  | -4.36  | 1 Minimal
|  2    2   2799  33|  -.09   .03|  .74   .56 || -3.60A  | -1.00  | 2 Limited
|  3    3   4943  58|  3.96  3.75|  .83   .78 ||  1.41A  |  4.52  | 3 Adequate
|  4    4    367   4|  7.50  9.07|  .67   .44 ||  7.47A  |( 8.65)| 4 Superior
+------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-------------------------------------------------------------------------+
|CATEGORY      STRUCTURE   |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP  |
| LABEL     MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+--------+---------+--------+
|   0       NONE       |( -6.42) -INF  -5.54 |         |  0%   0% |  57.9  | 0 Unscorable
|   1      -5.20   .15 |  -4.36  -5.54  -3.20 |  -5.35  | 82%  78% |  5.6%  | 1 Minimal
|   2      -3.52   .07 |  -1.00  -3.20   1.50 |  -3.38  | 83%  73% |  1.2%  | 2 Limited
|   3       1.49   .04 |   4.52   1.50   7.56 |   1.49  | 83%  91% |  2.7%  | 3 Adequate
|   4       7.55   .06 |( 8.65)  7.56  +INF  |   7.55  | 63%  47% |-25.0%  | 4 Superior
+-------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 13 Item and Threshold Difficulty

```
+----------------------------------------------------------------------------+
|ENTRY   RAW                   |  INFIT   | OUTFIT  |SCORE|        |        |
|NUMBER  SCORE  COUNT  MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|----------------------------------+---------+---------+-----+--------+--------+
|    1  23722  8861    -.23A    .03| .71  -9.9| .60  -9.9| .87 |  -.06  | P1D1  0
|    2  22907  8861     .02A    .02| .59  -9.9| .46  -9.9| .90 |   .01  | P1D2  0
|    3  22638  8861     .27A    .03| .54  -9.9| .39  -9.9| .89 |   .02  | P1D3  0
|    4  22697  8861     .19A    .02| .58  -9.9| .43  -9.9| .90 |   .01  | P1D4  0
|    5  22677  8861     .21A    .02| .71  -9.9| .57  -9.9| .88 |   .01  | P1D5  0
|----------------------------------+---------+---------+-----+--------+--------+
| MEAN  22928.  8861.    .09    .02| .63  -9.9| .49  -9.9|     |        |        |
| S.D.    408.     0.    .18    .00| .07   .0| .08   .0|     |        |        |
+----------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.23 ADDED TO MEASURES
+-----------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0      0   0 |            | .00   .00  || NONE  A |( -6.68)| 0 Unscorable
|  1    1    216   2 |-4.21 -3.06 | .42   .32  || -5.12A  | -4.93  | 1 Minimal
|  2    2   2896  33 | -.31  -.18 | .90   .91  || -4.28A  | -1.58  | 2 Limited
|  3    3   5282  60 | 3.81  3.69 | .83   .65  ||  1.54A  |  4.47  | 3 Adequate
|  4    4    467   5 | 8.02  8.54 | .50   .28  ||  7.86A  |( 8.73)| 4 Superior
+-----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------+
|   0       NONE        |( -6.68) -INF  -5.91 |         |   0%   0%|   53.0  | 0 Unscorable
|   1      -5.35   .15  | -4.93  -5.91  -3.97 |  -5.63  |  81%  77%|   8.2%  | 1 Minimal
|   2      -4.51   .08  | -1.58  -3.97   1.31 |  -4.23  |  85%  73%|  -2.1%  | 2 Limited
|   3       1.31   .04  |  4.47   1.31   7.64 |   1.31  |  85%  92%|   3.8%  | 3 Adequate
|   4       7.63   .06  |( 8.73)  7.64  +INF  |   7.63  |  76%  81%| -16.8%  | 4 Superior
+-----------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF .02 ADDED TO MEASURES
+-----------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0      0   0 |            | .00   .00  || NONE  A |( -6.77)| 0 Unscorable
|  1    1    277   3 |-4.21 -2.92 | .34   .20  || -5.53A  | -4.84  | 1 Minimal
|  2    2   3542  40 |  .05   .21 | .68   .57  || -4.18A  | -1.07  | 2 Limited
|  3    3   4622  52 | 4.23  4.02 | .70   .56  ||  1.98A  |  4.88  | 3 Adequate
|  4    4    420   5 | 8.08  8.75 | .51   .33  ||  7.73A  |( 8.85)| 4 Superior
+-----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------+
|CATEGORY    STRUCTURE   |  SCORE-TO-MEASURE   | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------+
|   0       NONE        |( -6.77) -INF  -5.92 |         |   0%   0%|   54.5  | 0 Unscorable
|   1      -5.51   .15  | -4.84  -5.92  -3.75 |  -5.70  |  81%  78%|   6.9%  | 1 Minimal
|   2      -4.16   .07  | -1.07  -3.75   2.00 |  -3.97  |  89%  80%|   1.3%  | 2 Limited
|   3       2.00   .03  |  4.88   2.00   7.76 |   2.00  |  83%  92%|   1.8%  | 3 Adequate
|   4       7.75   .06  |( 8.85)  7.76  +INF  |   7.75  |  81%  51%| -18.2%  | 4 Superior
+-----------------------------------------------------------------------+

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3

Domain ITEM DIFFICULTY MEASURE OF .27 ADDED TO MEASURES
+-----------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|  0    0      0   0 |            | .00   .00  || NONE  A |( -6.85)| 0 Unscorable
|  1    1    337   4 |-4.16 -2.84 | .29   .14  || -5.91A  | -4.74  | 1 Minimal
|  2    2   3435  39 |  .03   .23 | .61   .44  || -4.11A  |  -.94  | 2 Limited
|  3    3   4925  56 | 4.40  4.06 | .68   .56  ||  1.67A  |  5.28  | 3 Adequate
|  4    4    164   2 | 8.64 13.56 | .52   .27  ||  8.35A  |( 9.72)| 4 Superior
+-----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE | OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M |RESIDUAL |
|-----------------------+---------------------+---------+-----------+---------|
|   0     NONE          |( -6.85) -INF  -5.95 |         |  0%    0% |  55.6   | 0 Unscorable
|   1    -5.64    .15   | -4.74 -5.95  -3.54  | -5.77   | 97%   76% |   5.4%  | 1 Minimal
|   2    -3.84    .07   |  -.94 -3.54   1.95  | -3.71   | 90%   83% |    .9%  | 2 Limited
|   3     1.94    .03   |  5.28  1.95   8.62  |  1.94   | 87%   94% |   3.0%  | 3 Adequate
|   4     8.62    .07   |( 9.72)  8.62  +INF  |  8.62   | 59%   35% | -45.2%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4 P1D4
Domain ITEM DIFFICULTY MEASURE OF .19 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------|
|   0   0     0    0 |            |  .00   .00 || NONE  A |( -6.88)| 0 Unscorable
|   1   1   366    4 |-4.05 -2.79 |  .32   .17 || -5.88A  | -4.70  | 1 Minimal
|   2   2  3434   39 |  .10   .26 |  .64   .48 || -3.89A  |  -.86  | 2 Limited
|   3   3  4781   54 | 4.33  4.04 |  .70   .59 ||  1.78A  |  5.08  | 3 Adequate
|   4   4   280    3 | 8.20 10.33 |  .61   .40 ||  7.99A  |( 9.28) | 4 Superior
+-------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE | OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M |RESIDUAL |
|-----------------------+---------------------+---------+-----------+---------|
|   0     NONE          |( -6.88) -INF  -5.96 |         |  0%    0% |  55.3   | 0 Unscorable
|   1    -5.69    .15   | -4.70 -5.96  -3.44  | -5.80   | 94%   68% |   5.2%  | 1 Minimal
|   2    -3.70    .07   |  -.86 -3.44   1.97  | -3.59   | 87%   80% |   1.1%  | 2 Limited
|   3     1.97    .03   |  5.08  1.97   8.19  |  1.97   | 85%   91% |   2.5%  | 3 Adequate
|   4     8.18    .06   |( 9.28)  8.19  +INF  |  8.18   | 61%   59% | -29.3%  | 4 Superior
+---------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5 P1D5
Domain ITEM DIFFICULTY MEASURE OF .21 ADDED TO MEASURES

```
+-------------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
| LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|-------------------+------------+------------++---------+--------|
|   0   0     0    0 |            |  .00   .00 || NONE  A |( -6.97)| 0 Unscorable
|   1   1   451    5 |-3.71 -2.65 |  .44   .28 || -6.02A  | -4.58  | 1 Minimal
|   2   2  3323   38 |  .24   .30 |  .78   .63 || -3.55A  |  -.69  | 2 Limited
|   3   3  4768   54 | 4.24  4.02 |  .87   .79 ||  1.73A  |  4.99  | 3 Adequate
|   4   4   319    4 | 7.80  9.78 |  .77   .54 ||  7.83A  |( 9.14) | 4 Superior
+-------------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+---------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE | OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M |RESIDUAL |
|-----------------------+---------------------+---------+-----------+---------|
|   0     NONE          |( -6.97) -INF  -6.00 |         |  0%    0% |  55.2   | 0 Unscorable
|   1    -5.81    .15   | -4.58 -6.00  -3.16  | -5.89   | 86%   79% |   4.7%  | 1 Minimal
|   2    -3.34    .06   |  -.69 -3.16   1.95  | -3.27   | 82%   75% |   1.0%  | 2 Limited
|   3     1.94    .03   |  4.99  1.95   8.05  |  1.94   | 81%   88% |   2.5%  | 3 Adequate
|   4     8.04    .06   |( 9.14)  8.05  +INF  |  8.04   | 57%   47% | -25.9%  | 4 Superior
+---------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 14 Item and Threshold Difficulty

```
+-----------------------------------------------------------------------+
|ENTRY   RAW                     | INFIT  | OUTFIT |SCORE|           |   |
|NUMBER  SCORE   COUNT   MEASURE  ERROR|MNSQ  ZSTD|MNSQ  ZSTD|CORR.|DISPLACE| Domai G|
|-------------------------------+----------+----------+-----+--------+--------|
|    1   24246   8931    -.41A    .03| .60  -9.9| .47  -9.9| .88|   -.07| P1D1  0|
|    2   23656   8931    -.23A    .02| .58  -9.9| .44  -9.9| .90|   -.02| P1D2  0|
|    3   23037   8931     .12A    .03| .54  -9.9| .39  -9.9| .90|    .04| P1D3  0|
|    4   23291   8931    -.01A    .03| .54  -9.9| .39  -9.9| .90|    .01| P1D4  0|
|    5   23020   8931     .07A    .02| .70  -9.9| .54  -9.9| .89|    .03| P1D5  0|
|-------------------------------+----------+----------+-----+--------+--------|
| MEAN   23450.  8931.    -.09    .03| .59  -9.9| .44  -9.9|    |       |        |
| S.D.     460.     0.     .20    .00| .06   .0| .06   .0|    |       |        |
+-----------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1   P1D1
Domain ITEM DIFFICULTY MEASURE OF -.41 ADDED TO MEASURES

```
+----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------|
|   0    0      0   0|            | .00   .00 || NONE  A |( -6.77)| 0 Unscorable
|   1    1    219   2|-4.45 -3.22| .30   .23 || -5.03A  | -5.02  | 1 Minimal
|   2    2   2587  29| -.71  -.48| .74   .68 || -4.18A  | -1.84  | 2 Limited
|   3    3   5647  63| 3.67  3.51| .73   .61 ||  1.27A  |  4.19  | 3 Adequate
|   4    4    478   5| 7.98  8.54| .47   .22 ||  7.93A  |( 8.62)| 4 Superior
+----------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+---------+----------+---------|
|   0     NONE         |( -6.77) -INF  -5.99|         |  0%   0%|   54.6  | 0 Unscorable
|   1    -5.44    .15  | -5.02 -5.99  -4.05| -5.72  | 81%  78%|   6.9%  | 1 Minimal
|   2    -4.59    .08  | -1.84 -4.05   .87| -4.31  | 87%  76%|  -2.5%  | 2 Limited
|   3     .86     .04  |  4.19  .87   7.52|  .86   | 87%  95%|   3.8%  | 3 Adequate
|   4    7.52     .06  |( 8.62) 7.52  +INF|  7.52  | 88%  55%|  -17.7% | 4 Superior
+------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2   P1D2
Domain ITEM DIFFICULTY MEASURE OF -.23 ADDED TO MEASURES

```
+----------------------------------------------------------------+
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-------------------+------------+------------++---------+--------|
|   0    0      0   0|            | .00   .00 || NONE  A |( -6.85)| 0 Unscorable
|   1    1    277   3|-4.39 -3.11| .27   .15 || -5.36A  | -4.92  | 1 Minimal
|   2    2   3058  34| -.34  -.16| .69   .56 || -4.02A  | -1.41  | 2 Limited
|   3    3   5121  57| 3.93  3.75| .71   .59 ||  1.64A  |  4.47  | 3 Adequate
|   4    4    475   5| 7.94  8.46| .48   .27 ||  7.75A  |( 8.62)| 4 Superior
+----------------------------------------------------------------+
```
AVERAGE MEASURE is mean of measures in category.

```
+------------------------------------------------------------------------+
|CATEGORY    STRUCTURE  |  SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|----------------------+---------------------+---------+----------+---------|
|   0     NONE         |( -6.85) -INF  -6.01|         |  0%   0%|   56.1  | 0 Unscorable
|   1    -5.59    .15  | -4.92 -6.01  -3.84| -5.78  | 81%  81%|   5.4%  | 1 Minimal
|   2    -4.25    .07  | -1.41 -3.84   1.41| -4.06  | 85%  80%|    .6%  | 2 Limited
|   3    1.41     .04  |  4.47  1.41   7.53|  1.41  | 86%  92%|   2.4%  | 3 Adequate
|   4    7.52     .06  |( 8.62) 7.53  +INF|  7.52  | 86%  53%|  -17.2% | 4 Superior
+------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .12 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------++---------+--------+
|   0    0      0    0|            |  .00   .00 || NONE  A |( -6.96)| 0 Unscorable
|   1    1    368    4| -4.21 -2.97|  .28   .15 || -5.89A  | -4.79  | 1 Minimal
|   2    2   3201   36|  -.16   .02|  .62   .41 || -3.92A  | -1.08  | 2 Limited
|   3    3   5181   58|  4.24  3.92|  .69   .61 ||  1.50A  |  5.02  | 3 Adequate
|   4    4    181    2|  8.41 13.31|  .55   .30 ||  8.30A  |( 9.52) | 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |   SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0      NONE         |( -6.96) -INF   -6.05|         |   0%   0%|   57.6  | 0 Unscorable
|   1     -5.77    .15  | -4.79  -6.05  -3.54 |  -5.89  |  98%  74%|   3.7%  | 1 Minimal
|   2     -3.80    .07  | -1.08  -3.54   1.63 |  -3.69  |  89%  80%|   1.7%  | 2 Limited
|   3      1.62    .03  |  5.02   1.63   8.42 |   1.62  |  87%  95%|   2.7%  | 3 Adequate
|   4      8.42    .07  |( 9.52)  8.42  +INF  |   8.42  |  57%  33%|  -44.9% | 4 Superior
+-----------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF -.01 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------++---------+--------+
|   0    0      0    0|            |  .00   .00 || NONE  A |( -6.95)| 0 Unscorable
|   1    1    359    4| -4.23 -2.98|  .27   .14 || -5.74A  | -4.79  | 1 Minimal
|   2    2   3073   34|  -.26  -.05|  .60   .40 || -3.82A  | -1.16  | 2 Limited
|   3    3   5210   58|  4.13  3.83|  .69   .60 ||  1.50A  |  4.77  | 3 Adequate
|   4    4    289    3|  8.09 10.43|  .61   .35 ||  8.06A  |( 9.15) | 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+-----------------------------------------------------------------------+
|CATEGORY     STRUCTURE  |   SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------|
|   0      NONE         |( -6.95) -INF   -6.04|         |   0%   0%|   57.5  | 0 Unscorable
|   1     -5.75    .15  | -4.79  -6.04  -3.56 |  -5.87  |  93%  72%|   4.0%  | 1 Minimal
|   2     -3.83    .07  | -1.16  -3.56   1.50 |  -3.71  |  86%  81%|   1.1%  | 2 Limited
|   3      1.49    .03  |  4.77   1.50   8.05 |   1.49  |  87%  92%|   2.7%  | 3 Adequate
|   4      8.05    .06  |( 9.15)  8.05  +INF  |   8.05  |  57%  58%|  -30.7% | 4 Superior
+-----------------------------------------------------------------------+


SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5   P1D5

Domain ITEM DIFFICULTY MEASURE OF .07 ADDED TO MEASURES
+----------------------------------------------------------------
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|-----------------+------------+------------++---------+--------+
|   0    0      0    0|            |  .00   .00 || NONE  A |( -7.03)| 0 Unscorable
|   1    1    443    5| -3.84 -2.85|  .43   .29 || -5.94A  | -4.67  | 1 Minimal
|   2    2   3223   36|   .04   .11|  .77   .56 || -3.54A  |  -.87  | 2 Limited
|   3    3   4929   55|  4.14  3.93|  .87   .81 ||  1.64A  |  4.81  | 3 Adequate
|   4    4    336    4|  7.76  9.64|  .72   .47 ||  7.83A  |( 9.00) | 4 Superior
+----------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.
```

```
+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+---------------------+---------+----------+--------|
|   0      NONE         ( -7.03) -INF    -6.07|         |  0%   0% |  57.8  | 0 Unscorable
|   1     -5.87   .14    -4.67  -6.07  -3.29  |  -5.95  | 83%  80% |  2.7%  | 1 Minimal
|   2     -3.47   .06    -.87   -3.29   1.72  |  -3.39  | 84%  71% |  2.5%  | 2 Limited
|   3      1.71   .03     4.81   1.72   7.91  |   1.71  | 81%  90% |  1.7%  | 3 Adequate
|   4      7.90   .06   ( 9.00)  7.91  +INF   |   7.90  | 54%  47% | -25.8% | 4 Superior
+--------------------------------------------------------------------------+
```

Grade 9 Matrix Prompt 15 Item and Threshold Difficulty

```
+----------------------------------------------------------------------------------+
|ENTRY    RAW                        | INFIT   | OUTFIT  |SCORE |        |          |
|NUMBER  SCORE   COUNT  MEASURE ERROR|MNSQ ZSTD|MNSQ ZSTD|CORR. |DISPLACE| Domai G  |
|------------------------------------+---------+---------+------+--------+----------|
|    1  24529   9068    -.31A    .03 | .65 -9.9| .49 -9.9| .87  |  -.06  | P1D1  0  |
|    2  24022   9068    -.15A    .03 | .58 -9.9| .41 -9.9| .90  |  -.01  | P1D2  0  |
|    3  23500   9068     .18A    .03 | .55 -9.9| .37 -9.9| .89  |   .04  | P1D3  0  |
|    4  23831   9068     .01A    .03 | .53 -9.9| .36 -9.9| .90  |   .00  | P1D4  0  |
|    5  23693   9068     .02A    .02 | .67 -9.9| .50 -9.9| .89  |   .02  | P1D5  0  |
|------------------------------------+---------+---------+------+--------+----------|
| MEAN  23915.  9068.    -.05    .03 | .59 -9.9| .43 -9.9|      |        |          |
| S.D.    351.     0.     .17    .00 | .06  .0 | .06  .0 |      |        |          |
+----------------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 1  P1D1
Domain ITEM DIFFICULTY MEASURE OF -.31 ADDED TO MEASURES
+---------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL  SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|---------------------+------------+------------++---------+--------+
|   0    0      0   0 |            |  .00   .00 || NONE A  |( -6.46)| 0 Unscorable
|   1    1    162   2 |-4.51 -2.90 |  .23   .13 || -4.63A  | -4.96  | 1 Minimal
|   2    2   2761  30 | -.68  -.51 |  .82   .73 || -4.66A  | -1.96  | 2 Limited
|   3    3   5735  63 | 3.73  3.59 |  .82   .64 ||  1.26A  |  4.34  | 3 Adequate
|   4    4    410   5 | 8.16  8.86 |  .47   .20 ||  8.03A  |( 8.82) | 4 Superior
+---------------------------------------------------------------------+
AVERAGE MEASURE is mean of measures in category.
```

```
+--------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE  | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE  S.E.  | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL|
|-----------------------+---------------------+---------+----------+--------|
|   0      NONE         ( -6.46) -INF    -5.79|         |  0%   0% |  56.1  | 0 Unscorable
|   1     -4.94   .15    -4.96  -5.79  -4.14  |  -5.43  | 79%  83% | 14.5%  | 1 Minimal
|   2     -4.97   .09    -1.96  -4.14    .95  |  -4.48  | 88%  72% | -2.1%  | 2 Limited
|   3       .95   .04     4.34    .95   7.72  |    .95  | 85%  95% |  3.5%  | 3 Adequate
|   4      7.72   .06   ( 8.82)  7.72  +INF   |   7.72  | 86%  53% | -19.4% | 4 Superior
+--------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 2  P1D2
Domain ITEM DIFFICULTY MEASURE OF -.15 ADDED TO MEASURES
+---------------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL  SCORE COUNT % |AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|---------------------+------------+------------++---------+--------+
|   0    0      0   0 |            |  .00   .00 || NONE A  |( -6.55)| 0 Unscorable
|   1    1    227   3 |-4.37 -2.81 |  .26   .12 || -5.04A  | -4.85  | 1 Minimal
|   2    2   3138  35 | -.42  -.24 |  .69   .52 || -4.36A  | -1.53  | 2 Limited
|   3    3   5293  58 | 3.98  3.79 |  .70   .56 ||  1.54A  |  4.55  | 3 Adequate
|   4    4    410   5 | 8.11  8.78 |  .50   .28 ||  7.86A  |( 8.81) | 4 Superior
+---------------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+---------+----------+---------|
|   0      NONE          |( -6.55) -INF   -5.79|         |  0%   0% |  57.6   | 0 Unscorable
|   1     -5.19    .15   | -4.85  -5.79  -3.92 |  -5.50  | 80%  77% |  11.8%  | 1 Minimal
|   2     -4.51    .08   | -1.53  -3.92   1.39 |  -4.20  | 86%  81% |    .6%  | 2 Limited
|   3      1.39    .04   |  4.55   1.39   7.72 |   1.39  | 86%  93% |   2.1%  | 3 Adequate
|   4      7.71    .06   |( 8.81)  7.72  +INF  |   7.71  | 86%  53% | -19.0%  | 4 Superior
+-------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 3   P1D3
Domain ITEM DIFFICULTY MEASURE OF .18 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|  0    0      0    0|            |  .00   .00 || NONE A  |( -6.63)| 0 Unscorable
|  1    1    280    3| -4.30 -2.75|  .24   .10 || -5.52A  | -4.77  | 1 Minimal
|  2    2   3273   36|  -.30  -.11|  .62   .39 || -4.38A  | -1.30  | 2 Limited
|  3    3   5386   59|  4.26  3.94|  .71   .60 ||  1.38A  |  5.13  | 3 Adequate
|  4    4    129    1|  8.61 15.85|  .58   .28 ||  8.52A  |( 9.80) | 4 Superior
+-----------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+---------+----------+---------|
|   0      NONE          |( -6.63) -INF   -5.81|         |  0%   0% |  59.2   | 0 Unscorable
|   1     -5.34    .15   | -4.77  -5.81  -3.74 |  -5.57  | 98%  76% |   9.1%  | 1 Minimal
|   2     -4.20    .07   | -1.30  -3.74   1.57 |  -3.98  | 90%  80% |   1.4%  | 2 Limited
|   3      1.56    .03   |  5.13   1.57   8.70 |   1.56  | 87%  95% |   2.6%  | 3 Adequate
|   4      8.70    .07   |( 9.80)  8.70  +INF  |   8.70  | 42%  36% | -52.8%  | 4 Superior
+-------------------------------------------------------------------------+
```

SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 4   P1D4
Domain ITEM DIFFICULTY MEASURE OF .01 ADDED TO MEASURES

```
+-----------------------------------------------------------------+
|CATEGORY     OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE |
|------------------+------------+------------++---------+--------+
|  0    0      0    0|            |  .00   .00 || NONE A  |( -6.63)| 0 Unscorable
|  1    1    289    3| -4.28 -2.74|  .23   .09 || -5.37A  | -4.75  | 1 Minimal
|  2    2   3056   34|  -.42  -.21|  .60   .40 || -4.15A  | -1.37  | 2 Limited
|  3    3   5462   60|  4.08  3.81|  .68   .57 ||  1.35A  |  4.77  | 3 Adequate
|  4    4    261    3|  8.38 10.73|  .54   .26 ||  8.17A  |( 9.28) | 4 Superior
+-----------------------------------------------------------------+
```

AVERAGE MEASURE is mean of measures in category.

```
+-------------------------------------------------------------------------+
|CATEGORY    STRUCTURE    | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL   MEASURE   S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|------------------------+------------------+---------+----------+---------|
|   0      NONE          |( -6.63) -INF   -5.81|         |  0%   0% |  58.8   | 0 Unscorable
|   1     -5.36    .15   | -4.75  -5.81  -3.71 |  -5.57  | 95%  71% |   9.5%  | 1 Minimal
|   2     -4.14    .07   | -1.37  -3.71   1.37 |  -3.93  | 86%  82% |    .4%  | 2 Limited
|   3      1.36    .04   |  4.77   1.37   8.18 |   1.36  | 89%  92% |   2.7%  | 3 Adequate
|   4      8.18    .07   |( 9.28)  8.18  +INF  |   8.18  | 66%  63% | -31.7%  | 4 Superior
+-------------------------------------------------------------------------+
```

```
SUMMARY OF CATEGORY STRUCTURE Domain NUMBER: 5  P1D5
Domain ITEM DIFFICULTY MEASURE OF .02 ADDED TO MEASURES
+-------------------------------------------------------------------
|CATEGORY    OBSERVED|OBSVD SAMPLE|INFIT OUTFIT||STRUCTURE|CATEGORY|
|LABEL SCORE COUNT  %|AVRGE EXPECT| MNSQ  MNSQ || MEASURE | MEASURE|
|--------------------+------------+------------++---------+--------+
|   0    0      0   0|            |  .00   .00 || NONE  A |( -6.68)| 0 Unscorable
|   1    1    336   4|-4.02 -2.69|  .34   .19 ||  -5.47A |  -4.68 | 1 Minimal
|   2    2   3180  35| -.18  -.09|  .75   .56 ||  -3.92A |  -1.18 | 2 Limited
|   3    3   5211  57| 4.06  3.87|  .84   .76 ||   1.50A |   4.72 | 3 Adequate
|   4    4    341   4| 7.95  9.43|  .65   .36 ||   7.89A |(  9.01)| 4 Superior
+-------------------------------------------------------------------
AVERAGE MEASURE is mean of measures in category.


+----------------------------------------------------------------------------+
|CATEGORY    STRUCTURE   | SCORE-TO-MEASURE | 50% CUM.| COHERENCE| OBS-EXP |
| LABEL    MEASURE  S.E. | AT CAT. ----ZONE----|PROBABLTY| M->C C->M|RESIDUAL |
|-----------------------+---------------------+---------+----------+---------+
|   0      NONE         |( -6.68) -INF  -5.82 |         |  0%   0% |  59.4   | 0 Unscorable
|   1     -5.45    .15  | -4.68  -5.82  -3.55 |  -5.62  | 84%  84% |   7.9%  | 1 Minimal
|   2     -3.90    .07  | -1.18  -3.55   1.53 |  -3.74  | 85%  75% |   1.6%  | 2 Limited
|   3      1.52    .03  |  4.72   1.53   7.91 |   1.52  | 83%  91% |   1.8%  | 3 Adequate
|   4      7.91    .06  |(  9.01) 7.91  +INF  |   7.91  | 64%  47% | -23.7%  | 4 Superior
+----------------------------------------------------------------------------+
```

Appendix B

PSSA Grade 6 and 9 Writing

Assumptions:
1. The goal is to report the most accurate and useful data available for every student.
2. The number of students taking prompts from the wrong grade is too small to permit calibration of the out-of-grade prompts.
3. The sample sizes for all the matrix (field-test) prompts will be more than adequate for all within-grade calibrations.
4. The intended design included two common prompts, which were to be the basis of the scale score.
5. When a scale score can be computed, it can be rolled up into the aggregate reports.

Design:

	One	Two	Three
Grade 6	15 Field-Test 2 Equating	One Common Informational	One Common Persuasive
Grade 9	15 Field-Test 2 Equating	One Common Narrative	One Common Persuasive

Variations:
1. ***The student responded to the two common prompts for the correct grade***. It does not matter what the other prompt was or what order the prompts were taken; the student can be reported in the standard manner.
2. ***The student did not respond to both common prompts, but did respond to the correct modes***. The student can be reported in the standard manner, except the scale score cannot be taken from the standard raw-to-scale conversion table. The scale score would be computed from two prompts for the correct modes. If the student responded to two prompts from the same mode, use the higher of the two. Appropriate disclaimers would be needed to explain that the student scores are not from the common prompts.
3. ***The student did not respond to prompts from the correct modes***. The student cannot receive the standard report. The scale score would be best estimated using the three prompts that were taken. The report would be adapted to reflect the modes that were taken. Appropriate disclaimers would be needed to explain what the student took.
4. ***The student responded to the same prompt more than once***. The student will receive the higher score for the repeated prompt. Follow 1, 2 or 3 as much as possible.
5. ***The student took one or two out-of-grade prompts***. The out-of-grade scores would not be used in the scale scores because they cannot be calibrated. The points on these prompts could be reported if appropriate. Follow 1, 2 or 3 as much as possible.
6. ***The student took three out-of-grade prompts***. No scale score can be computed. The points on these prompts could be reported if appropriate.

Defensible Scale Scores
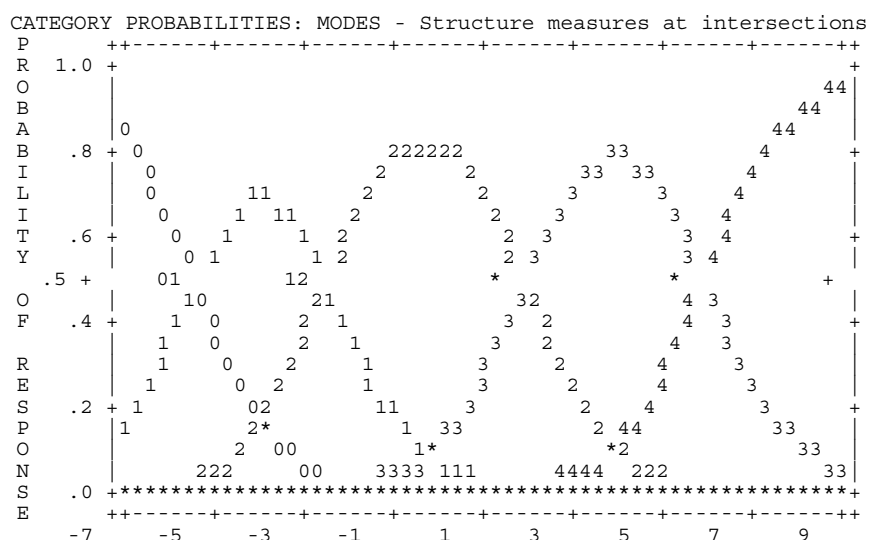
The problem is to estimate the scale score students would be expected to obtain had they responded to the intended prompts. Technically, this can be done as follows:

1. link all the prompts to one common scale,
2. estimate each student's scale score based on the prompts taken,
3. compute an expected raw score for the student on the two intended common prompts, and
4. estimate the scale score associated with that raw score.

The solution is actually easier than the problem.

The major effect contributing to differences in student scale scores is the difference among score categories. Prompts and domains vary by less than 0.5 logits; score points are separated by 3 or 4 logits. This is shown in the category plot below. Each curve is the probability of achieving a particular domain score for a given logit ability.

Figure 1: Category Plot

```
CATEGORY PROBABILITIES: MODES - Structure measures at intersections
P     ++------+------+------+------+------+------+------+------++
R   1.0 +                                                      +
O     |                                                     44|
B     |                                                   44  |
A     |0                                                44    |
B    .8 + 0               222222          33            4     +
I     |   0                2       2     33  33      4        |
L     |   0      11         2         2      3     3     4    |
I     |    0    1  11       2            2    3       3   4   |
T    .6 +    0   1      1  2             2  3        3  4      +
Y     |     0 1         1 2             2  3         3  4      |
    .5 +      01        12              *            *      +
O     |        10        21               32        4  3      |
F    .4 +     1   0      2   1           3   2       4   3     +
      |      1    0      2    1          3    2      4    3    |
R     |      1     0    2      1         3     2    4     3    |
E     |      1       0  2      1         3      2   4      3   |
S    .2 + 1          02       11    3         2     4      3   +
P     |1            2*          1  33         2 44        33   |
O     |            2    00         1*           *2         33  |
N     |         222      00    3333 111       4444  222       33|
S    .0 +****************************************************+
E     ++------+------+------+------+------+------+------+------++
       -7      -5      -3      -1      1       3       5       7       9
```

Roughly speaking, a person with a logit ability between +2 and +6 would be expected to score a 3 on this domain. The plot shown is for a randomly chosen prompt, mode and domain. It is typical of the others, although the precise positioning on the logit scale may vary.

Figure 2 compares the expected scores across three prompts. This indicates that a person with a logit ability between +2 and +5 would be expected to score 3, regardless of the prompt, mode or domain.

All items and domains show the same pattern: the logit difficulties for each score point are tightly clustered, regardless of prompt or domain. The student's scale score is overwhelmingly determined by raw score points received. Regardless of which prompt the student was actually responding to, the best estimate of the student's score on the correct

prompt would be the scores the student actually received. In other words, if the student's scores were 3s, the most *probable* scores for the student on any prompt would also be 3s.

Figure 2: Expected Domain Scores

```
-7      -5      -3      -1      1       3       5       7       9
|------+------+------+------+------+------+------+------+------| Prmpt/Domain
00    :    1    :      2     :      3     :  4    4   P3D3C
0  0  :    1    :      2     :      3     :    4  4   P3D2C
0     0  : 1    :    2       :      3     :    4  4   P1D3
0     0  : 1    :     2      :      3     :   4   4   P1D4
0  0  :    1    :     2      :      3     :    4  4   P3D4C
0     0  : 1  :    2         :      3     :   4   4   P1D2
0     0  : 1  :    2         :    3       :  4    4   P1D5
0     :    1    :     2      :      3     :   4   4   P2D3C
0  0  :    1    :    2       :      3     :   4   4   P3D1C
0  0  :    1    :     2      :    3       :   4   4   P3D5C
0     0  : 1  :    2         :    3       :  4    4   P1D1
0     :    1    :      2     :      3     :  4    4   P2D4C
0     :    1    :      2     :    3       :   4   4   P2D2C
00    :    1    :    2       :      3     :  4    4   P2D1C
0     :    1    :     2      :    3       :  4    4   P2D5C
|------+------+------+------+------+------+------+------+------| Prmpt/Domain
-7      -5      -3      -1      1       3       5       7       9
```

Consequently, the best estimates of the scale scores for students responding to unintended prompts would be the scale score from the standard raw-to-scale table corresponding to each student's observed score.

It is our recommendation that the same raw-to-scale conversion table, based on the common prompts, be used for all students.

There is also a question of what two prompts to count for the students who did not take the two common prompts for their grade. If, for example, the student took three matrix prompts, the second and third prompts are not more relevant or valid than the first position. A possible strategy for choosing is:

1. use prompts for the correct grade when possible,
2. use prompts for the correct modes for the grade when possible,
3. use a scored prompt over an unscorable prompt,
4. use the higher score.

Rules three and four seem the most problematic. By giving the irregular cases the *benefit of the doubt*, they might be interpreted as giving these students an advantage over the others.

For rule three, one category of unscorable occurs when the student writes to the same prompt twice. Handscoring, as a matter of routine, selects the higher score and codes the other as unscorable. The student may then have written three essays, so there should be two reportable scores regardless of their positions. The case of trying to choose between two otherwise admissible papers can only occur if the student took two or more matrix prompts or two out-of-grade prompts. Using the highest two recognizes that field-test prompts, on average, tend to be harder than operational. Prompts that are out-of-grade level, either up or down, may be more difficult to respond to as well because of less appropriate content.

Out-of-grade Prompts

Students who took out-of-grade prompts present a theoretical problem. There is no way to compute a scale score across grades. Four students did not take at least two prompts within their own grade level. These are summarized below.

```
06 22111 07 04I 11111 05Y 00000 00Y 05Y 12 1 91 2I 2 92 XN
09 00000 00 15P 00000 00Y 00000 00Y 00Y 11 1 6116I 2 62 XI 3 62 XI
09 22222 10 01I 11112 06Y 21122 08Y 14Y 11         2 62 XI 3 63 XP
09 33233 14 16I 33333 15Y 00000 00Y 15Y 11         2 6116I 3 6116I
```

The first record is the only grade 6 student. This student has scores of 7, 5 and 0 on the three prompts, respectively. The first prompt was grade 9, prompt 1, form 2, informational. The second was grade 9, prompt 2, common, narrative and the third was the correct grade 6 common prompt. The only grade 6 prompt was unscorable. Suggestion: **treat the two scorable prompts as though they were the correct prompts, and give the student a raw score of 12 and a scale score of 914.** Report the modes actually taken.

The second record is a grade 9 student who responded to three sixth-grade prompts. All were unscorable.

Suggestion: **report as unscorable**.

The other two grade 9 students responded to the intended matrix prompts and two sixth-grade prompts in place of the grade 9 common prompts. Suggestion: **give the students the benefit of the doubt and use the two highest sets of scores.**

The basic principle in all cases is to use the highest two sets of raw scores and convert to scale scores using the standard raw to scale conversion table.

Summary Statistics

Report the same state summary statistics at the total-test level for all students on the ISRs, regardless of the form the student took. For any student who did not take the intended mode, we recommend not reporting state summary statistics for the prompt or domain. Instead, there should be a brief statement to the effect that "The number of students taking this prompt was too low to allow useful summary statistics to be reported."