

APPENDIX J

IRT & MODE LINKING REPORT

MASSACHUSETTS COMPREHENSIVE ASSESSMENT SYSTEM

2016 - 2017: IRT & MODE LINKING REPORT



IRT and Mode Linking Report

The purpose of this document is to summarize the IRT calibration and mode linking results obtained from Measured Progress for Next Generation MCAS Assessment. Presented in this report are various program summary statistics and specific results related to the study.

The results of this report are organized as follows:

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1. Aggregate Results

Section 1.1 Percentage of Students by Achievement Levels Categories

Table 1.1.1 English Language Arts - Online

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	26459	7	41	43	8	52	500.1
4	2017	63918	8	41	43	8	51	500.1
5	2017	28547	7	42	46	5	51	499.9
6	2017	29369	8	39	47	6	53	500.3
7	2017	30209	8	38	48	6	53	500.2
8	2017	65314	9	40	43	8	51	499.5

Table 1.1.2 English Language Arts – Paper Unadjusted

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	42947	6	37	46	11	57	503.2
4	2017	5778	15	54	28	4	31	490.4
5	2017	39597	7	40	47	7	54	500.8
6	2017	38221	7	35	50	8	58	502.5
7	2017	38540	7	35	49	9	58	502.1
8	2017	4054	18	41	34	6	40	492.7

Table 1.1.3 English Language Arts – Paper Mode-adjusted

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	42947	10	44	38	8	46	498.2
4	2017	5778	-	-	-	-	-	-
5	2017	39597	9	42	42	7	49	498.4
6	2017	38221	9	40	43	8	51	499.2
7	2017	38540	10	40	44	6	50	498.8
8	2017	4054	-	-	-	-	-	-

Table 1.1.4 English Language Arts – Combined

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	69406	9	43	40	8	48	498.9
4	2017	69696	8	42	42	8	49	499.3
5	2017	68144	8	42	44	6	50	499.1
6	2017	67590	8	40	45	7	52	499.7
7	2017	68749	9	39	46	6	51	499.4
8	2017	69368	10	40	42	8	51	499.1

Table 1.1.5 Mathematics - Online

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	26659	11	37	44	8	52	499.2
4	2017	64473	10	39	44	6	51	498.7
5	2017	29285	8	42	42	8	49	499.4
6	2017	29704	9	39	46	6	52	499.7
7	2017	30144	9	43	40	8	48	498.9
8	2017	66077	9	42	40	9	49	500.3

Table 1.1.6 Mathematics – Paper Unadjusted

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	43353	10	35	44	10	55	501.1
4	2017	5861	22	44	31	3	34	489.6
5	2017	39872	9	44	41	7	48	498.7
6	2017	39214	11	38	44	8	51	499.7
7	2017	39980	11	42	36	11	47	499.4
8	2017	4069	22	47	27	3	31	488.4

Table 1.1.7 Mathematics – Paper Mode-adjusted

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	43353	11	40	41	7	49	498.5
4	2017	5861	-	-	-	-	-	-
5	2017	39872	9	46	38	7	45	498.1
6	2017	39214	11	40	41	8	49	498.8
7	2017	39980	11	42	37	10	47	498.4
8	2017	4069	-	-	-	-	-	-

Table 1.1.8 Mathematics – Combined

Grade	Year	Count	NM	PM	ME	EE	ME/EE	Ave. SS
3	2017	70012	11	39	42	7	50	498.8
4	2017	70334	11	39	43	6	49	497.9
5	2017	69157	9	44	40	7	47	498.6
6	2017	68918	10	40	43	7	50	499.2
7	2017	70124	10	42	38	9	47	498.6
8	2017	70146	9	42	39	9	48	499.6

Section 1.2 Raw Scores Associated with Cutpoints

Table 1.2.1 Raw Scores Associated with Cutpoints - ELA

Subject	Grade	Cut Point	Online	Paper Adjusted	Paper Unadjusted
ELA	3	NM-PM	12	14(+2)	12
		PM-ME	24	26(+2)	24
		ME-EE	33	34(+1)	33
		Max Score	42	42	42
	4	NM-PM	15	-	15
		PM-ME	29	-	29
		ME-EE	37	-	36
		Max Score	42	-	42
	5	NM-PM	16	18(+2)	16
		PM-ME	31	32(+1)	31
		ME-EE	41	40	40
		Max Score	46	46	46
	6	NM-PM	12	13(+1)	12
		PM-ME	28	30(+2)	28
		ME-EE	41	41	41
		Max Score	49	49	49
	7	NM-PM	15	17(+2)	15
		PM-ME	31	33(+2)	31
		ME-EE	43	43(+1)	42
		Max Score	49	49	49
	8	NM-PM	17	-	17
		PM-ME	32	-	32
		ME-EE	42	-	42
		Max Score	49	-	49

Table 1.2.2 Raw Scores Associated with Cutpoints - Math

Subject	Grade	Cut Point	Online	Paper Adjusted	Paper Unadjusted
MATH	3	NM-PM	13	15(+1)	14
		PM-ME	29	32(+2)	30
		ME-EE	43	44(+1)	43
		Max Score	48	48	48
	4	NM-PM	16	-	16
		PM-ME	33	-	33
		ME-EE	49	-	49
		Max Score	54	-	54
	5	NM-PM	14	14	14
		PM-ME	31	33(+1)	32
		ME-EE	48	49	49
		Max Score	54	54	54
	6	NM-PM	10	10	10
		PM-ME	27	27(+1)	26
		ME-EE	47	47	47
		Max Score	54	54	54
	7	NM-PM	9	10	10
		PM-ME	25	25	25
		ME-EE	44	44(+1)	43
		Max Score	54	54	54
	8	NM-PM	13	-	12
		PM-ME	30	-	28
		ME-EE	47	-	47
		Max Score	54	-	54

Section 1.3 Calibration Report

PARSCALE 4.1 was used for the IRT calibration at Measured Progress. The Online and Paper forms were calibrated separately for each subject/grade. All command files were set up in a way following general settings. The calibration statement reads:

```
CAL GRADED,LOGISTIC,CYCLE=(150,1,1,1,1),TPRIOR,SPRIOR,GPRIOR, CRIT=0.01;
```

A 3PLM was used for standard four-option multiple choice (MC) items, a 2PLM was used for dichotomously-scored short response items, multi-select items, and technology-enhanced items, and a Graded Response Model (GRM) was specified for the polytomously-scored multi-part items and open response items. The logistic version of the IRT models was used, and default priors were used for all parameter estimates. Each item occupied its own unique block in the command file, and initial guessing parameters were set to 0.20.

The calibration went smoothly and got converged in all subjects/grades. In particular, the largest change in parameter values (from one iteration to the next) was decreasing and tended to flatten out towards the end of the calibration process. The number of Newton cycles to conversion for both Online and Paper forms in each grade/content for the initial calibrations are listed in the Table 1.3.1.

The IRT model fit was evaluated for each of the items. The resulting parameters demonstrated excellent model fit for the majority of the items. For items with poorer model fit, 3PLM was used instead of 2PLM to improve the model fit. For some items the guessing parameter was poorly estimated in PARSCALE. This is not at all unusual as difficulty in estimating the c-parameter has been well documented in the psychometric literature. This often happens when item discrimination is low or the items are particularly easy, where the “true” value of c-parameter can be very small. After carefully studying these items we found that fixing the lower asymptote (for example to a value of 0.00 or 0.05) resulted in stable and reasonable estimates for both the a and b parameters (relative to CTT statistics). This technique also produced item parameters that resulted in improved model fit (comparing theoretical ICCs to observed ICCs). The final watch list for IRT calibration is presented in the following Tables 1.3.2 and 1.3.3.

Table 1.3.1 Number of Cycles to Convergence

Subject	Grade	Online Initial Cycles	Paper Initial Cycles
English Language Arts	Grade 3	35	33
	Grade 4	31	59
	Grade 5	45	79
	Grade 6	38	30
	Grade 7	31	56
	Grade 8	40	32
Mathematics	Grade 3	30	27
	Grade 4	45	45
	Grade 5	26	60
	Grade 6	41	42
	Grade 7	68	56
	Grade 8	39	58

Table 1.3.2 Final Items Watch List for Online IRT Calibration

Subject	Grade	ItemID	Reason	Action
ELA	3	IA00268	c-parameter	set c = 0.05
	3	IA00275	c-parameter	set c = 0.05
	5	IA00146	c-parameter	set c = 0.00
	6	IA00347	c-parameter	set c = 0.05
	7	IA00072	c-parameter	set c = 0.05
	7	IA00074	c-parameter	set c = 0.05
	7	IA00077	c-parameter	set c = 0.05
	8	IA00207	c-parameter	set c = 0.00
	8	IA00200	c-parameter	set c = 0.00
Mathematics	4	IA00731	Model fit	2PL => 3PL
	5	IA00809	c-parameter	set c = 0.00
	5	IA00802	c-parameter	set c = 0.05
	6	IA01191	c-parameter	set c = 0.00
	8	IA00877	c-parameter	set c = 0.00
	8	IA00760	c-parameter	set c = 0.05

Table 1.3.3 Final Items Watch List for Paper IRT Calibration

Subject	Grade	ItemID	Reason	Action
ELA	3	IA00275	c-parameter	set c = 0.00
	3	IA00268	c-parameter	set c = 0.00
	5	IA00146	c-parameter	set c = 0.00
	6	IA00347	c-parameter	set c = 0.05
	6	IA00349D	a-parameter	a set to initial
	7	IA00072	c-parameter	set c = 0.00
	7	IA00077	c-parameter	set c = 0.00

continued

Subject	Grade	ItemID	Reason	Action
Mathematics	5	IA00809	c-parameter	set c = 0.00
	5	IA00802	c-parameter	set c = 0.05
	6	IA01210	c-parameter	set c = 0.00
	6	IA01191	c-parameter	set c = 0.00
	7	IA00883	c-parameter	set c = 0.05
	7	IA00768	c-parameter	set c = 0.05

Section 1.4 Linking Item Summary Statistics

The common items between Online and Paper forms were used as linking items to put paper item parameters onto online scale, so that online and paper forms are comparable with each other. The linking item summary statistics, including classical and IRT item statistics, are presented in Table 1.4.1.

Table 1.4.1 Linking Item Summary Statistics

Subject	Grade	Mode	P-Value		Point Biserial		a		b		
			Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	
ELA	03	Paper	0.63	0.19	0.40	0.11	0.79	0.26	-0.40	0.99	
		Online	0.62	0.20	0.39	0.12	0.76	0.27	-0.32	1.05	
	04	Paper	0.61	0.12	0.44	0.10	0.92	0.33	-0.15	0.64	
		Online	0.70	0.13	0.45	0.11	0.88	0.32	-0.78	0.57	
	05	Paper	0.71	0.13	0.43	0.14	0.84	0.28	-0.81	0.84	
		Online	0.71	0.15	0.43	0.15	0.83	0.27	-0.91	0.88	
	06	Paper	0.63	0.14	0.48	0.13	0.90	0.20	-0.35	0.69	
		Online	0.63	0.16	0.48	0.14	0.89	0.22	-0.36	0.76	
	07	Paper	0.66	0.11	0.44	0.14	0.81	0.23	-0.55	0.72	
		Online	0.66	0.13	0.44	0.16	0.78	0.30	-0.64	0.73	
	08	Paper	0.63	0.15	0.49	0.16	0.99	0.36	-0.24	0.66	
		Online	0.70	0.16	0.45	0.17	0.86	0.38	-0.83	0.80	
	Mathematics	03	Paper	0.62	0.17	0.47	0.11	0.98	0.20	-0.31	0.80
			Online	0.61	0.17	0.47	0.11	0.97	0.19	-0.23	0.82
		04	Paper	0.53	0.19	0.47	0.10	1.02	0.27	0.07	0.76
			Online	0.63	0.19	0.47	0.11	0.96	0.24	-0.39	0.85
05		Paper	0.58	0.17	0.45	0.11	0.92	0.25	-0.21	0.86	
		Online	0.59	0.17	0.44	0.11	0.91	0.28	-0.25	0.88	
06		Paper	0.54	0.20	0.50	0.14	1.12	0.36	-0.07	0.86	
		Online	0.54	0.21	0.48	0.14	1.10	0.36	-0.06	0.93	
07		Paper	0.54	0.19	0.52	0.12	1.10	0.30	-0.08	0.78	
		Online	0.54	0.21	0.50	0.13	1.06	0.29	-0.07	0.87	
08		Paper	0.46	0.17	0.49	0.14	1.07	0.29	0.44	0.69	
		Online	0.58	0.17	0.48	0.13	1.01	0.29	-0.13	0.76	

Table 1.4.2 Final Items Watch List for Mode DIF analysis

Subject	Grade	ItemID	Reason	Action
ELA	3	IA00199	b-b	removed from linking
	8	IA00040*	delta	retained for linking*
Mathematics	5	IA00751	delta	removed from linking
	5	IA00751	b-b	removed from linking
	5	IA01169	delta	removed from linking
	5	IA01169	b-b	removed from linking
	6	IA00790	b-b	removed from linking

*ELA08 paper form uses online item parameters for scaling.

The Stocking and Lord procedure was used to transform paper parameter estimates onto the online scale. This procedure results in constants which were applied to the resulting IRT parameters for each grade/content, except for ELA08, where online item parameter estimates were used for paper form. These transformation constants were found using the STUIRT program which can be found at the CASMA website: <http://www.education.uiowa.edu/casma/>. The Stocking & Lord transformation constants that were used in the linking process are listed in the following table:

Table 1.4.3 Stocking and Lord Constants

Subject	Grade	Slope	Intercept
English Language Arts	3	1.04	0.17
	4	0.99	-0.49
	5	1.00	0.04
	6	1.02	0.11
	7	0.99	0.10
Mathematics	3	1.01	0.09
	4	1.09	-0.44
	5	1.05	-0.04
	6	1.06	0.00
	7	1.08	0.03
	8	1.06	-0.56

Section 1.5 Summary of Psychometric QC Activities

Summary of Psychometric Quality Control Activities

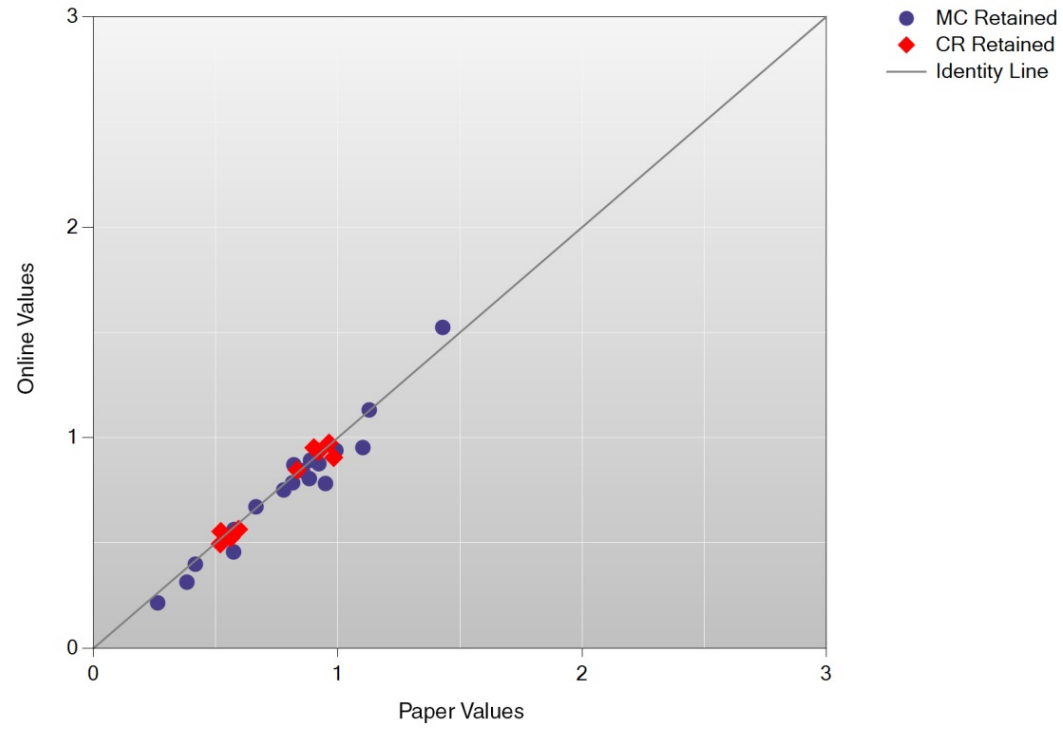
1. Key verification process
2. Delta analysis
 - a. Crit > 3 removed
3. b/b analysis
 - a. Crit > 3 removed
4. IRT and Linking Analysis
 - a. Reasonableness of item parameters
 - b. Low a, high SE on B, c parameter poorly estimated
 - c. Fit files
 - d. Normal end evaluation
 - e. Delta plot
 - f. a-plot, b-plots
 - g. TCCs and information functions
 - h. Proficiency levels and scaled score distributions
5. Watch List (items were continuously evaluated)
 - a. 8 criteria
 - b. Statistical values
 - c. Content

2. Grade Subject Results

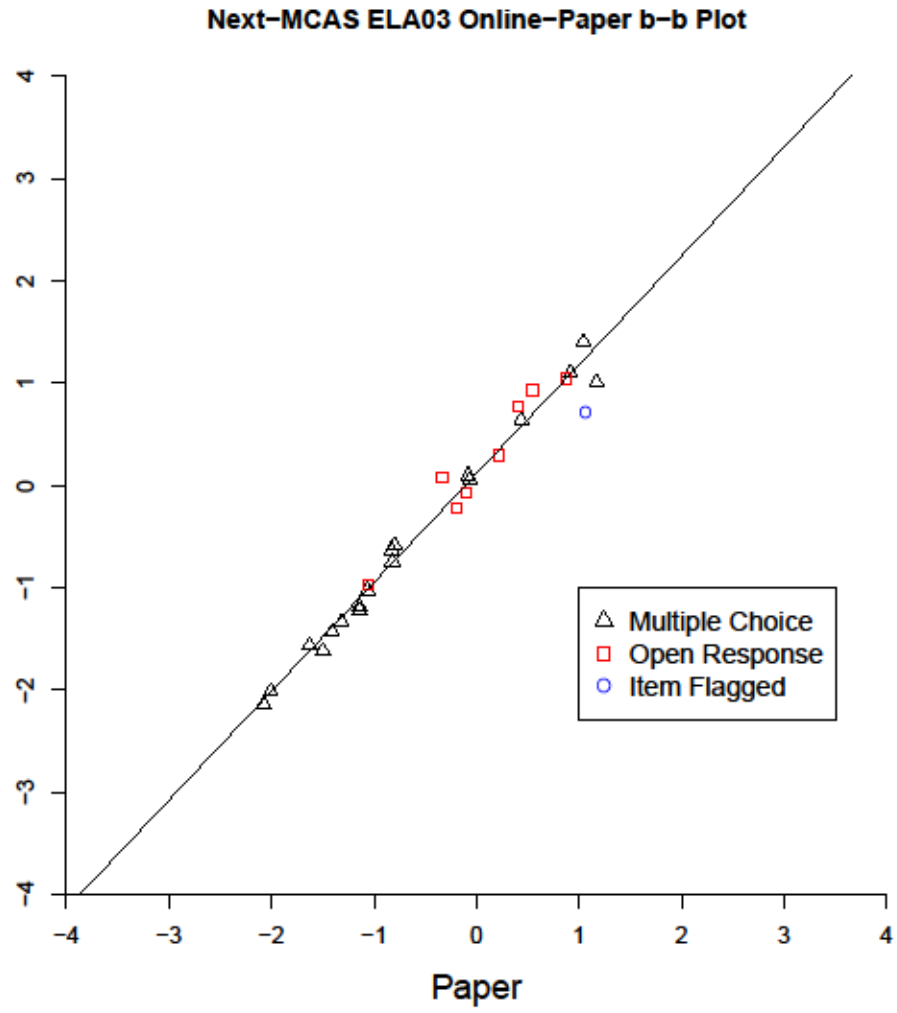
Section 2.1

A/A, B/B, Delta, Test Characteristic Curve, Test Information Function, and Cumulative Scale Score Distribution Plots

A/A Plot: English Language Arts Grade 3

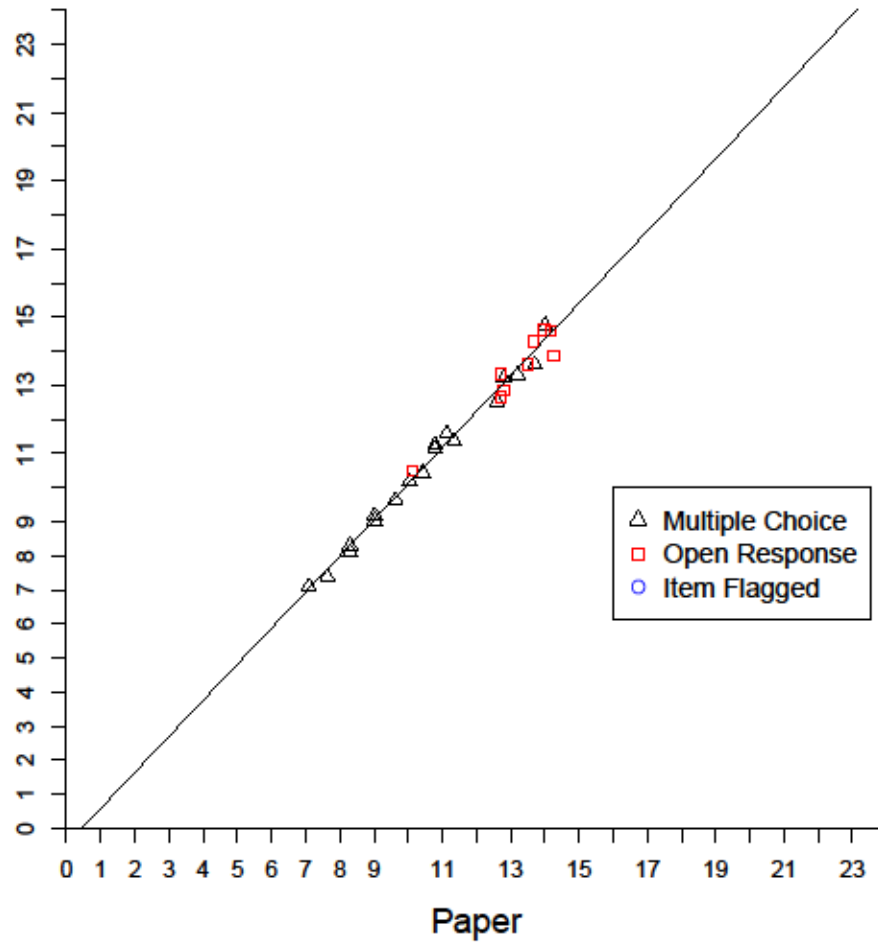


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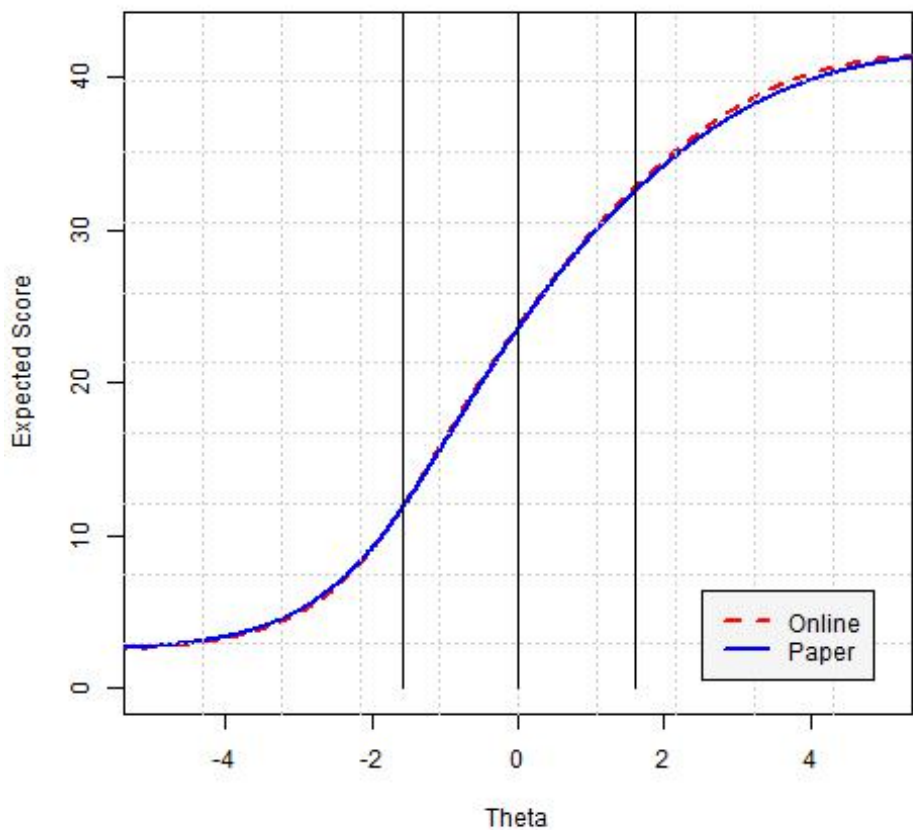


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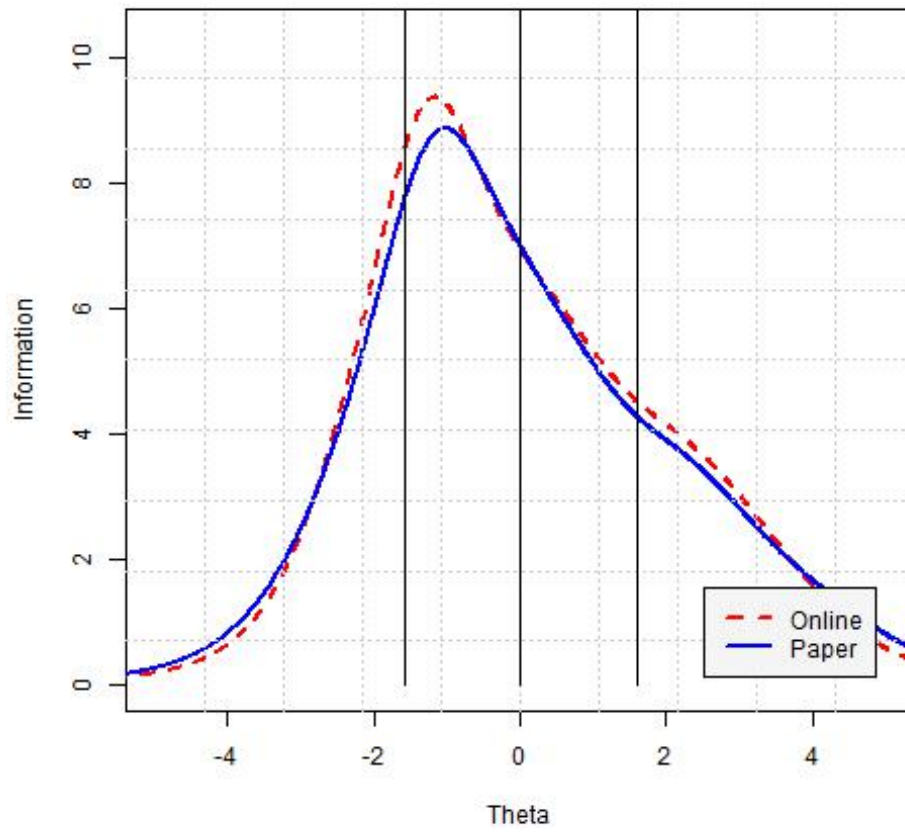
Next-MCAS ELA03 Online-Paper Delta Plot



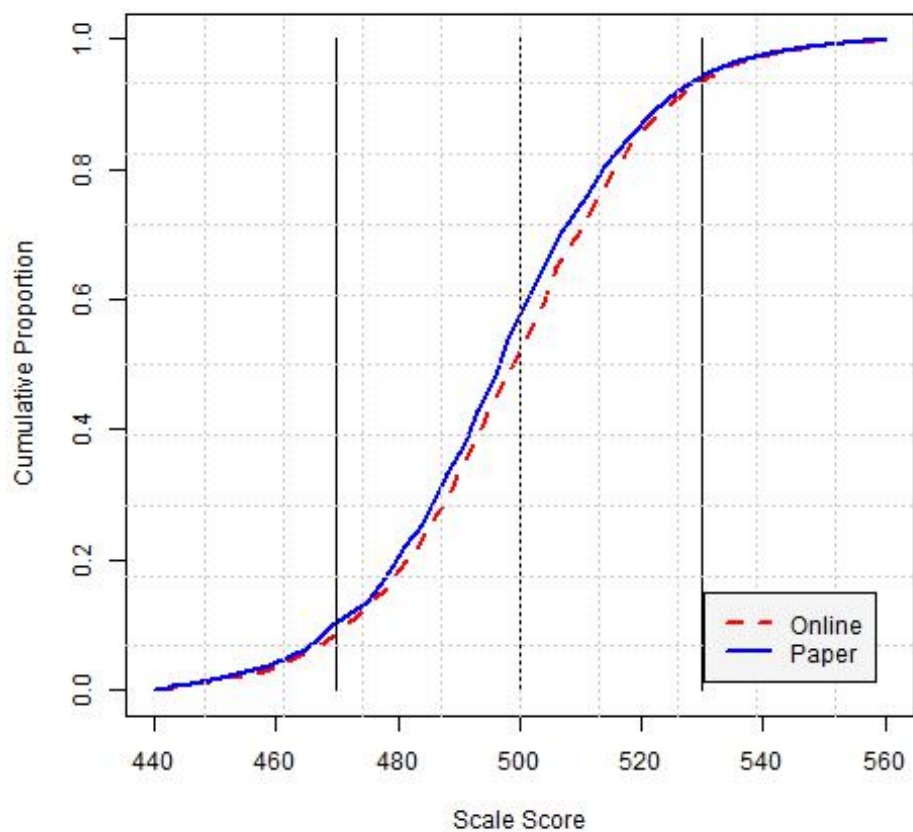
Test Characteristic Curve: ELA Grade 3



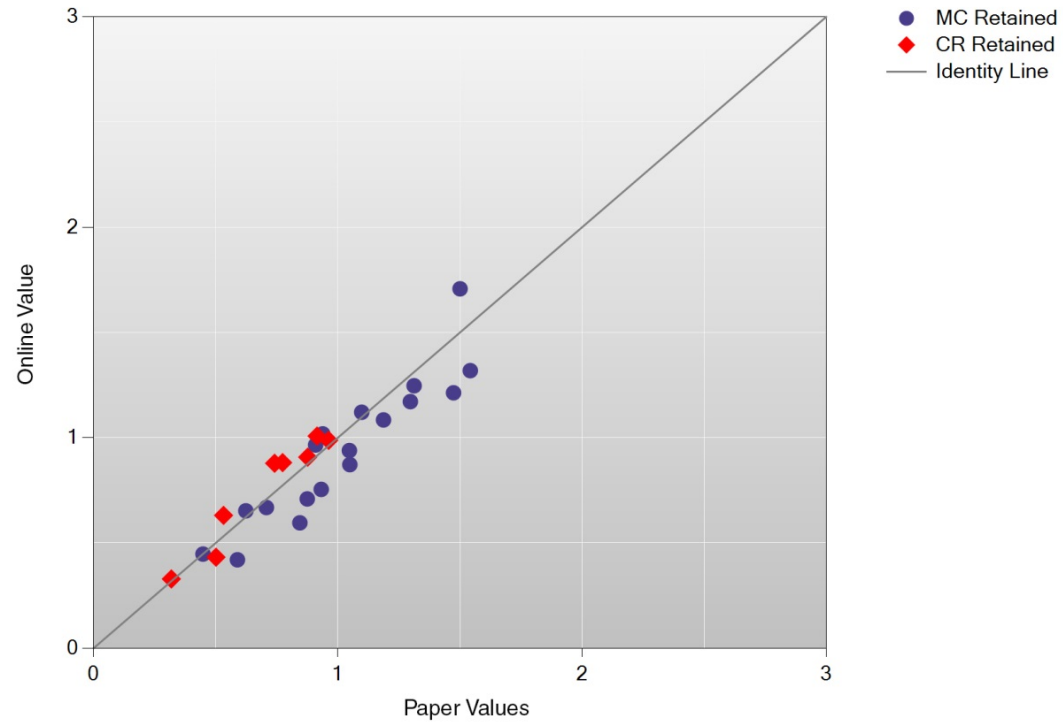
Test Information Function: ELA Grade 3



Cumulative Scale Score Distribution: ELA Grade 3

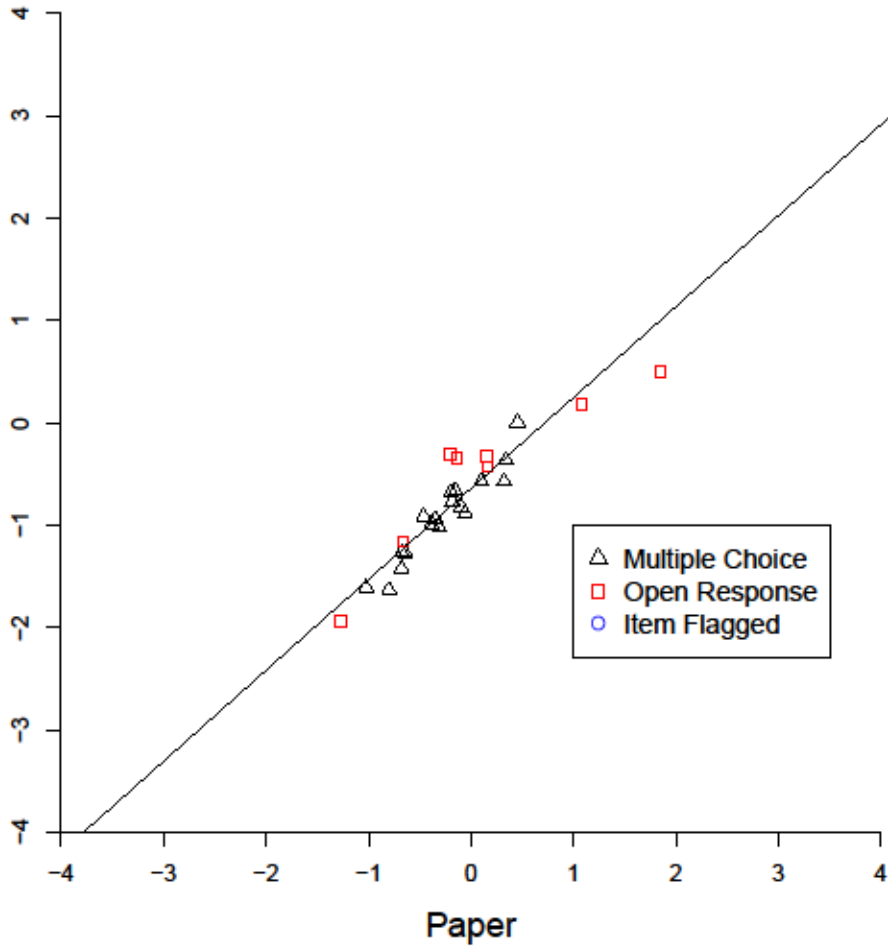


A/A Plot: English Language Arts Grade 4



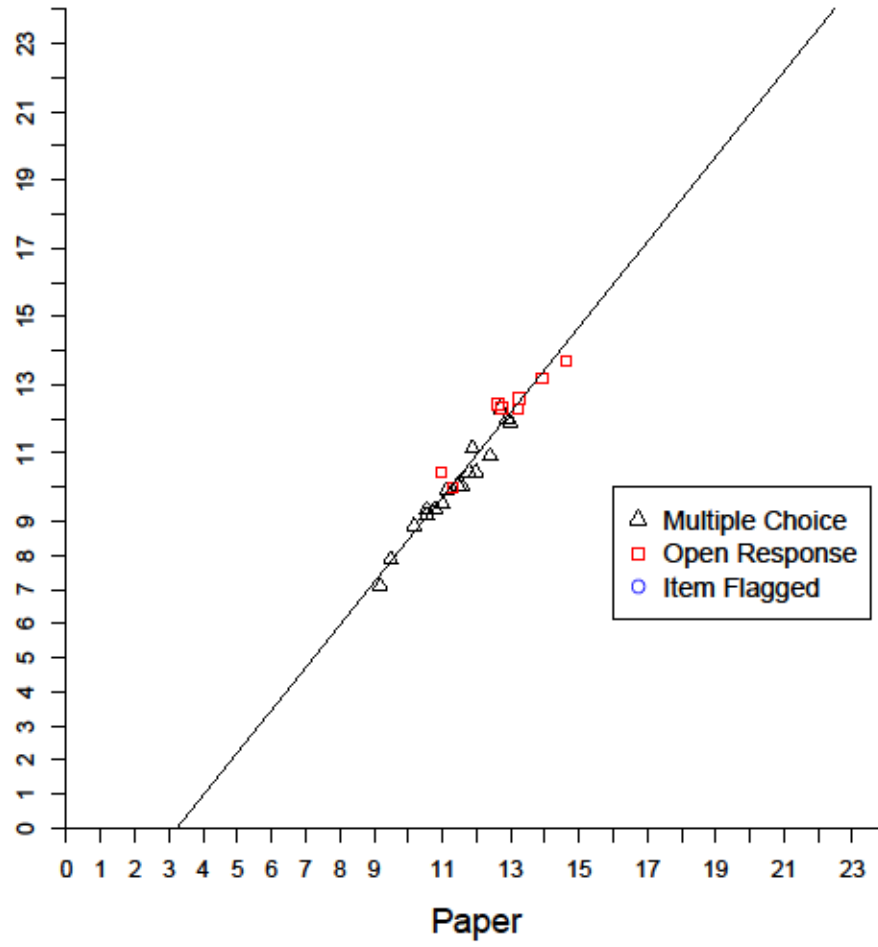
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Next-MCAS ELA04 Online-Paper b-b Plot

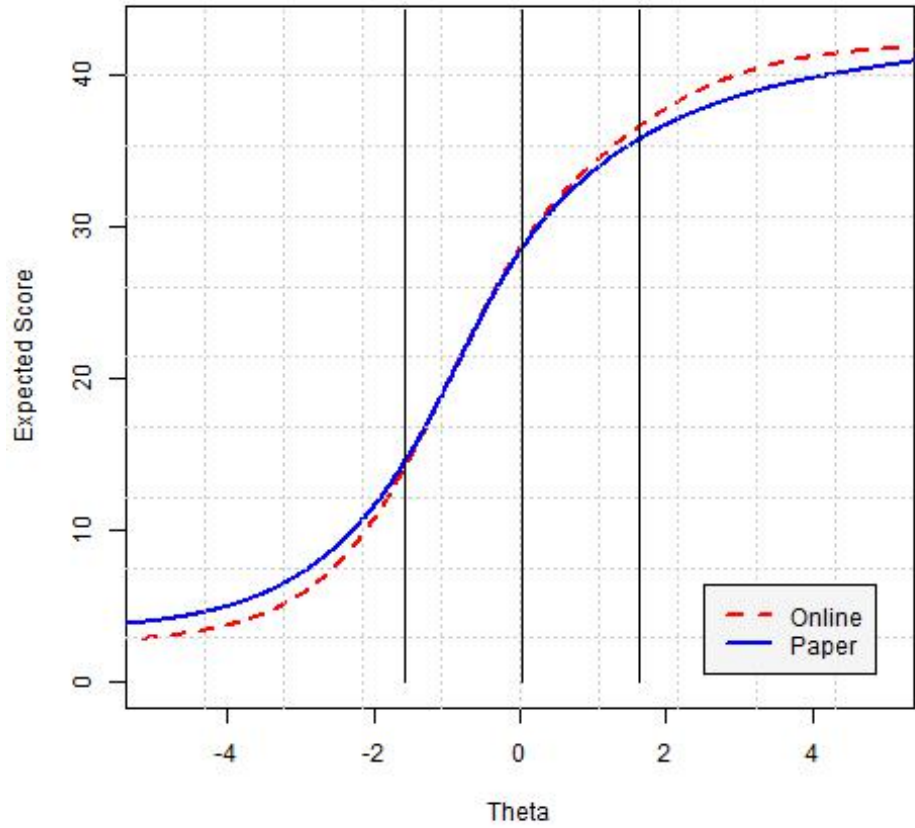


Online

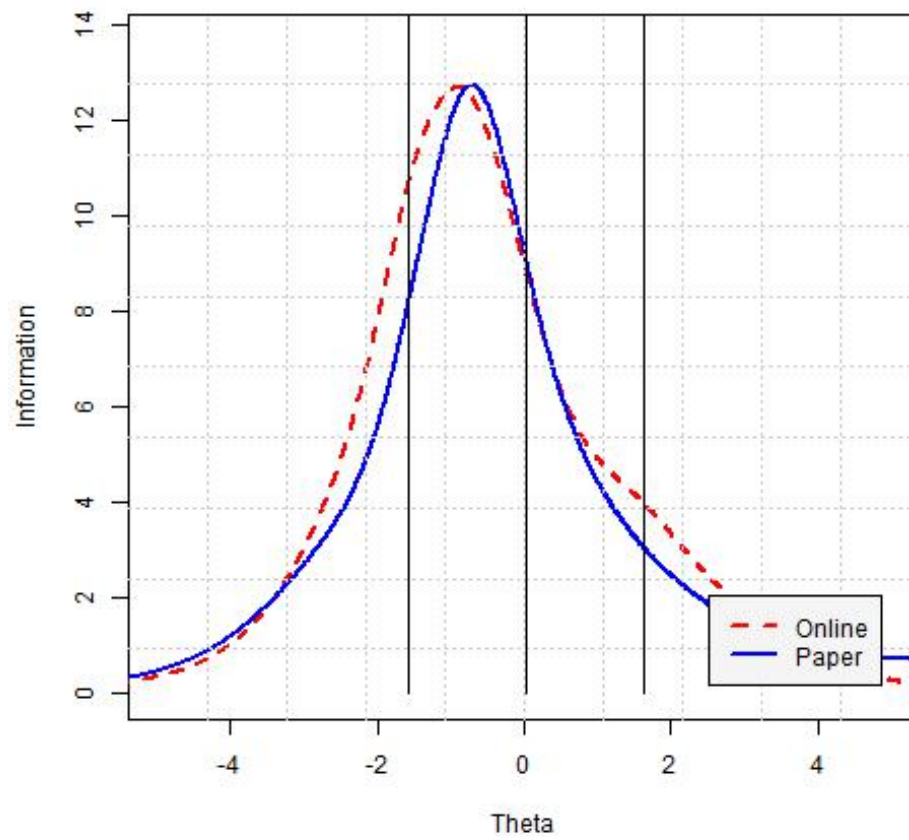
Next-MCAS ELA04 Online-Paper Delta Plot



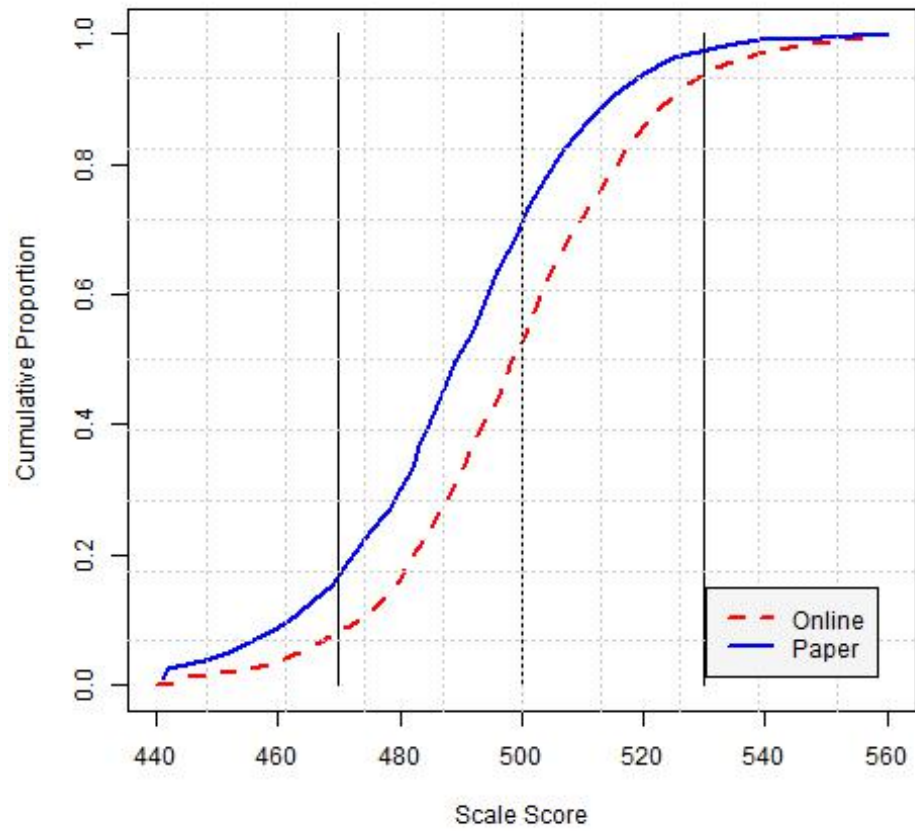
Test Characteristic Curve: ELA Grade 4



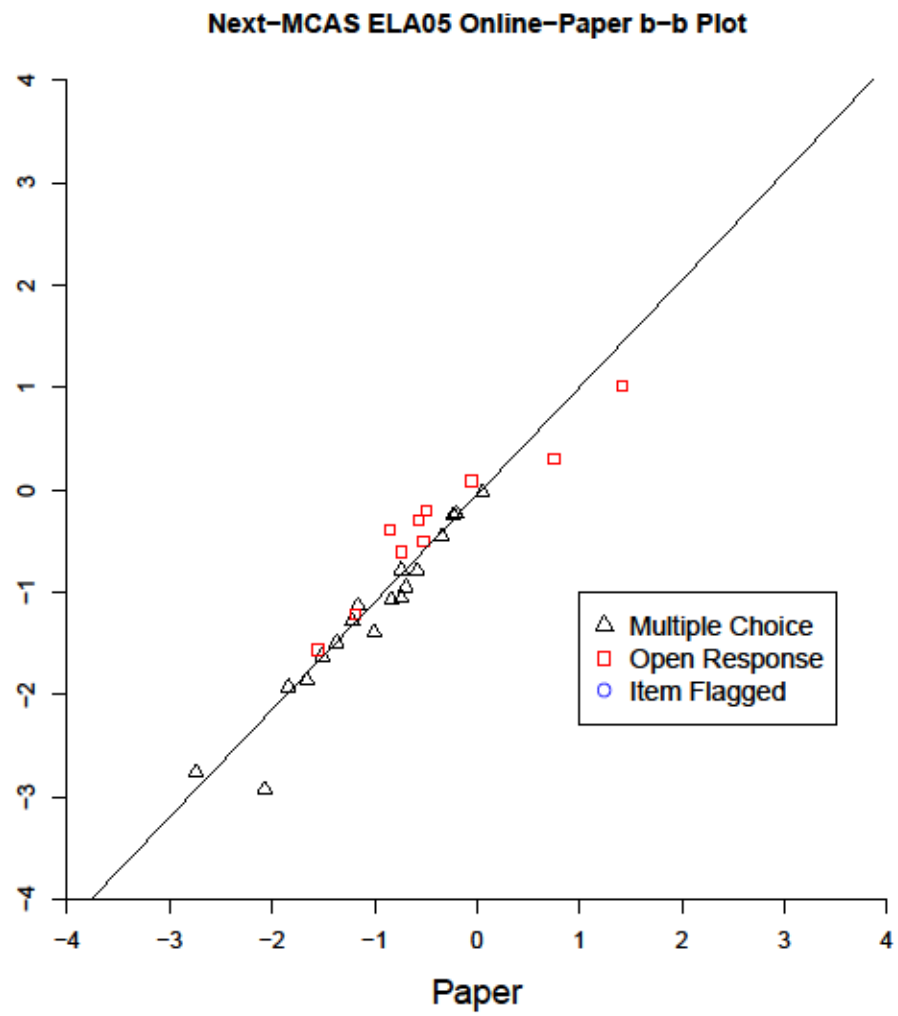
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Cumulative Scale Score Distribution: ELA Grade 4

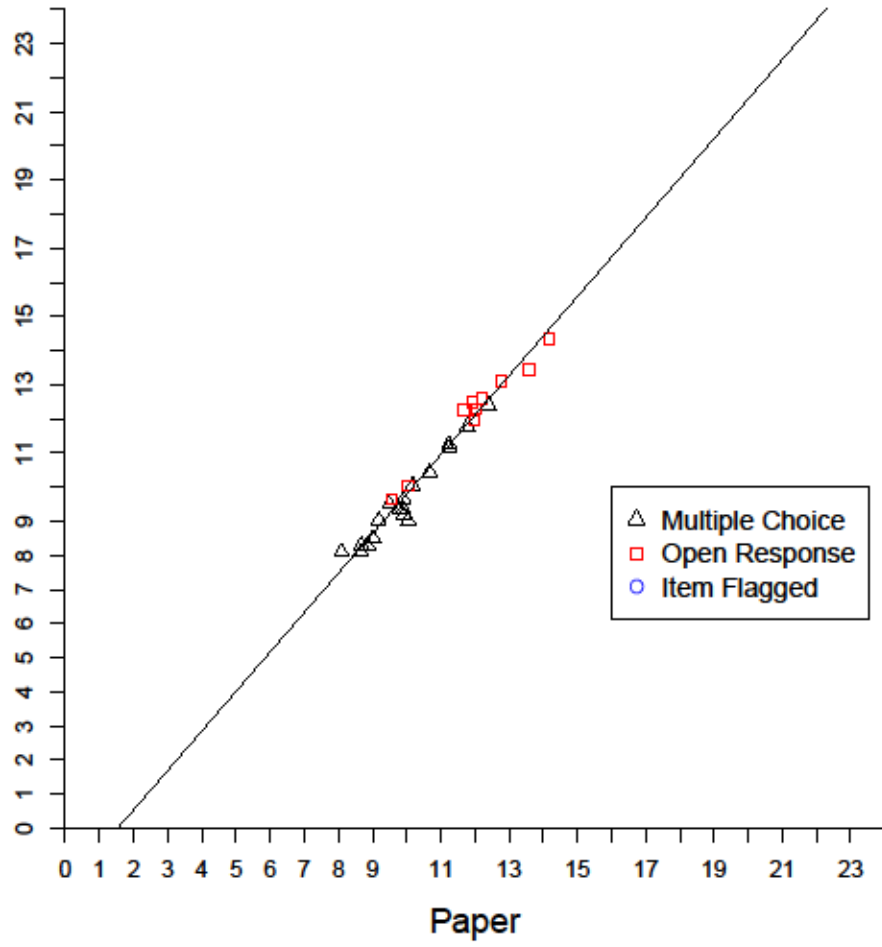


Online

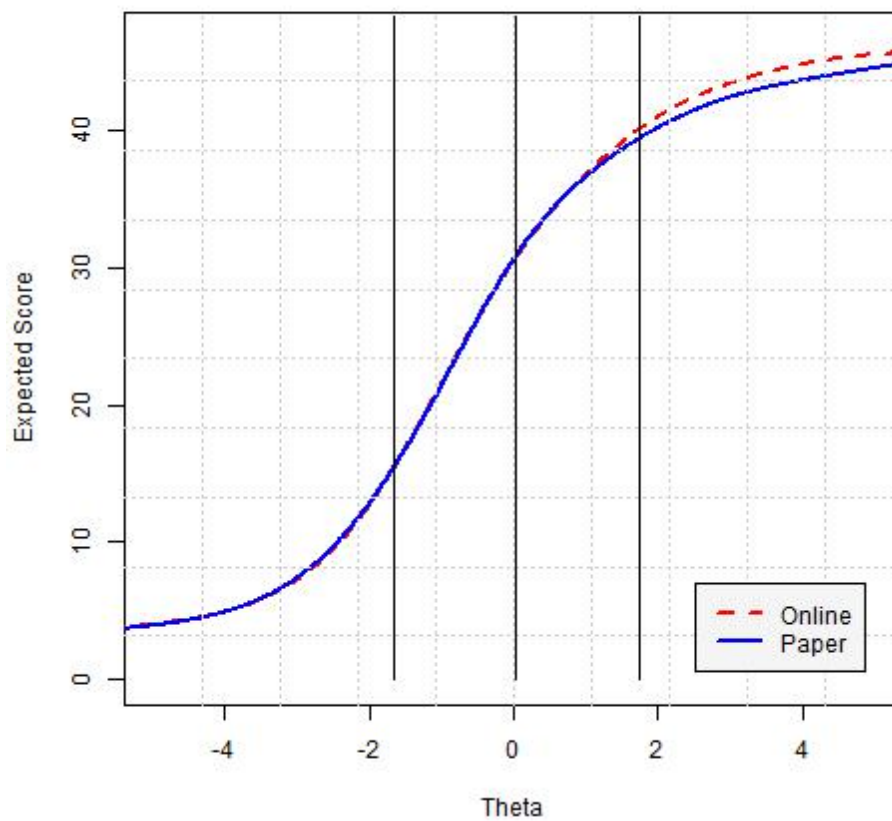


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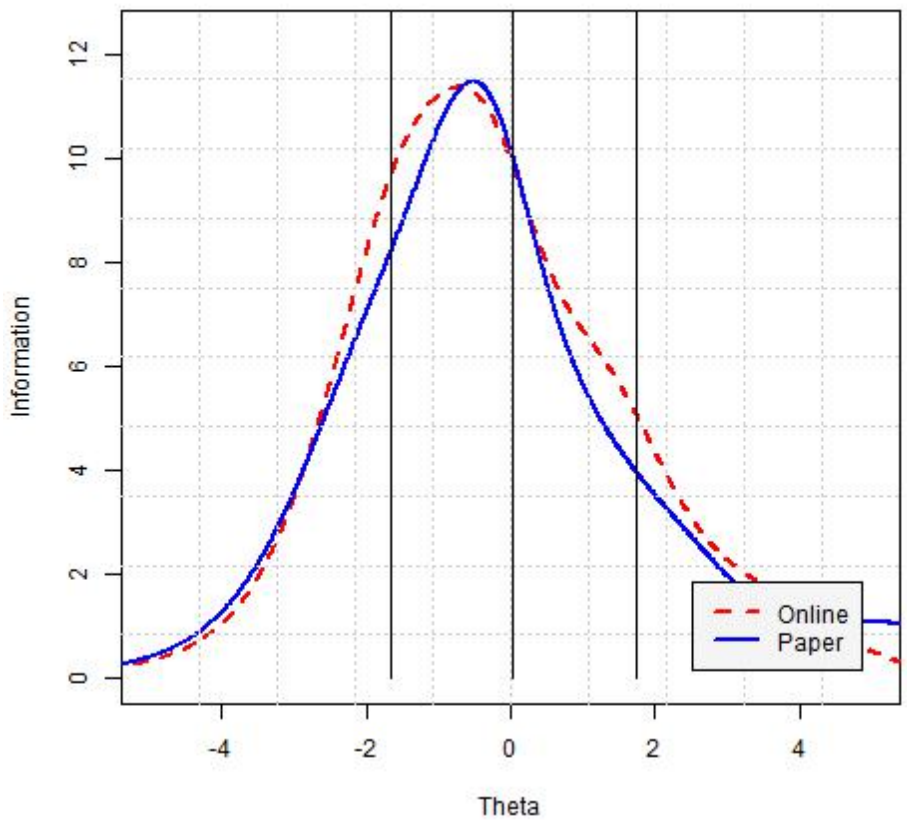
Next-MCAS ELA05 Online-Paper Delta Plot



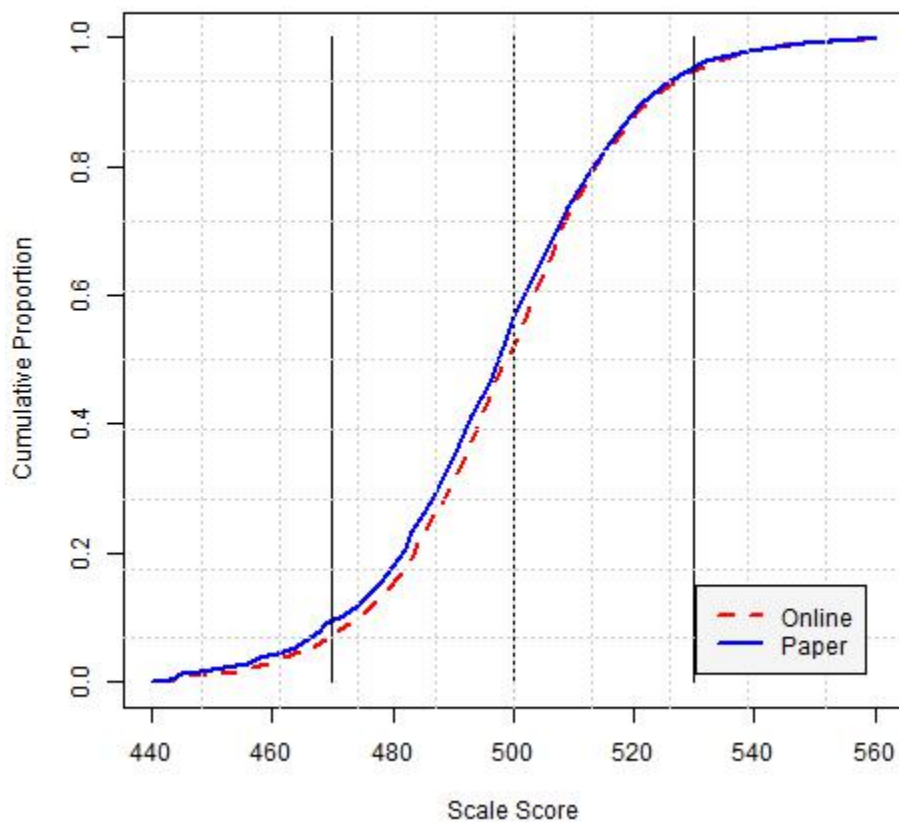
Test Characteristic Curve: ELA Grade 5



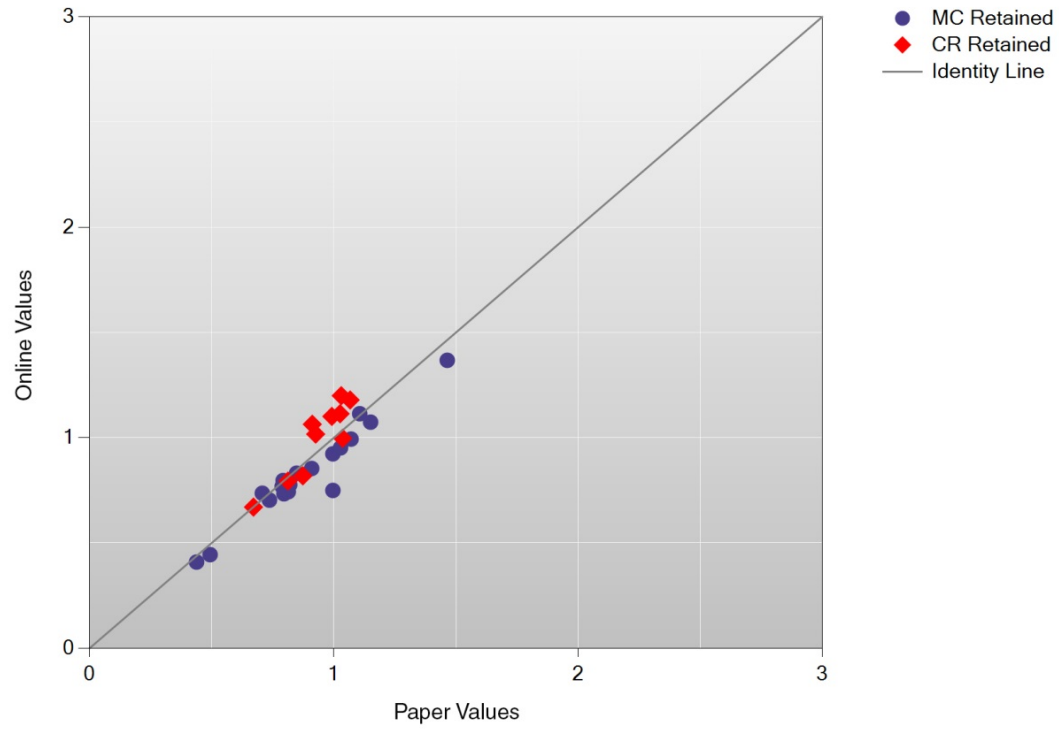
Test Information Function: ELA Grade 5



Cumulative Scale Score Distribution: ELA Grade 5

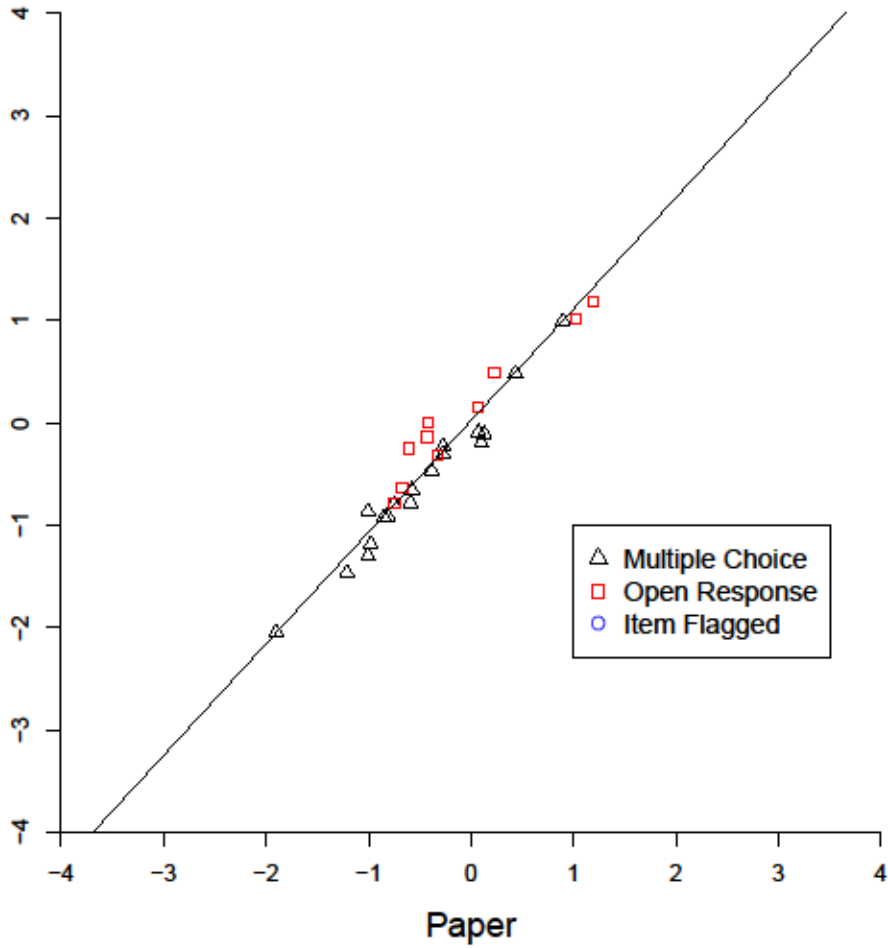


A/A Plot: English Language Arts Grade 6



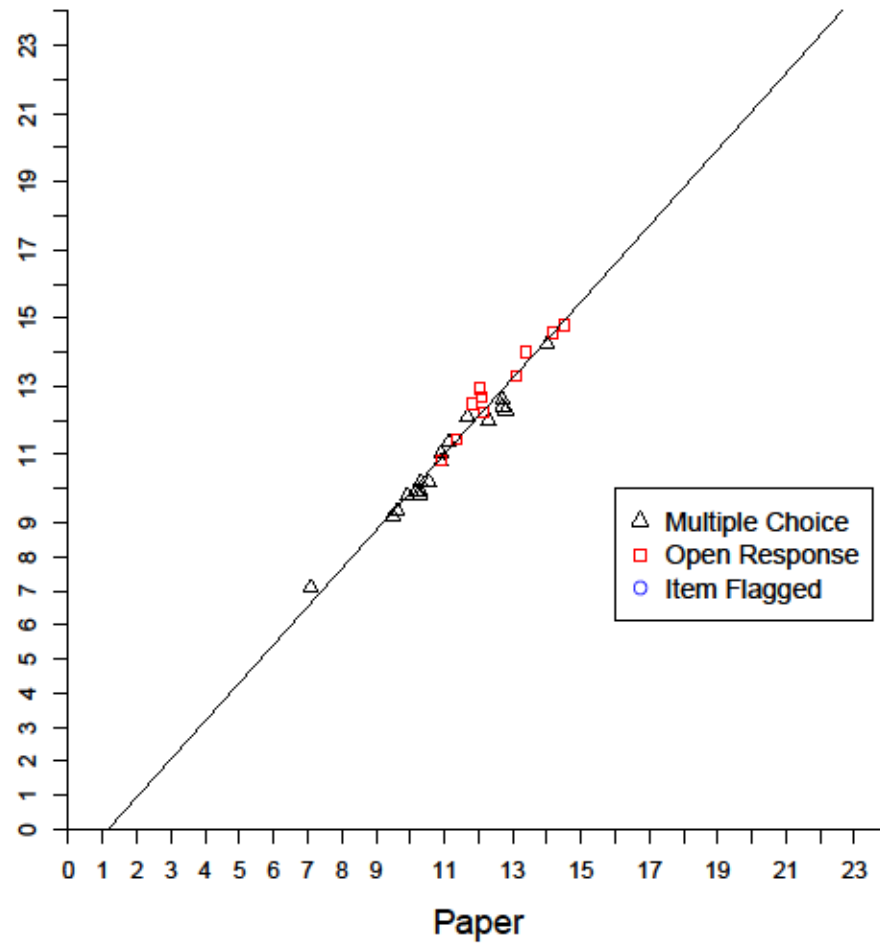
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Next-MCAS ELA06 Online-Paper b-b Plot

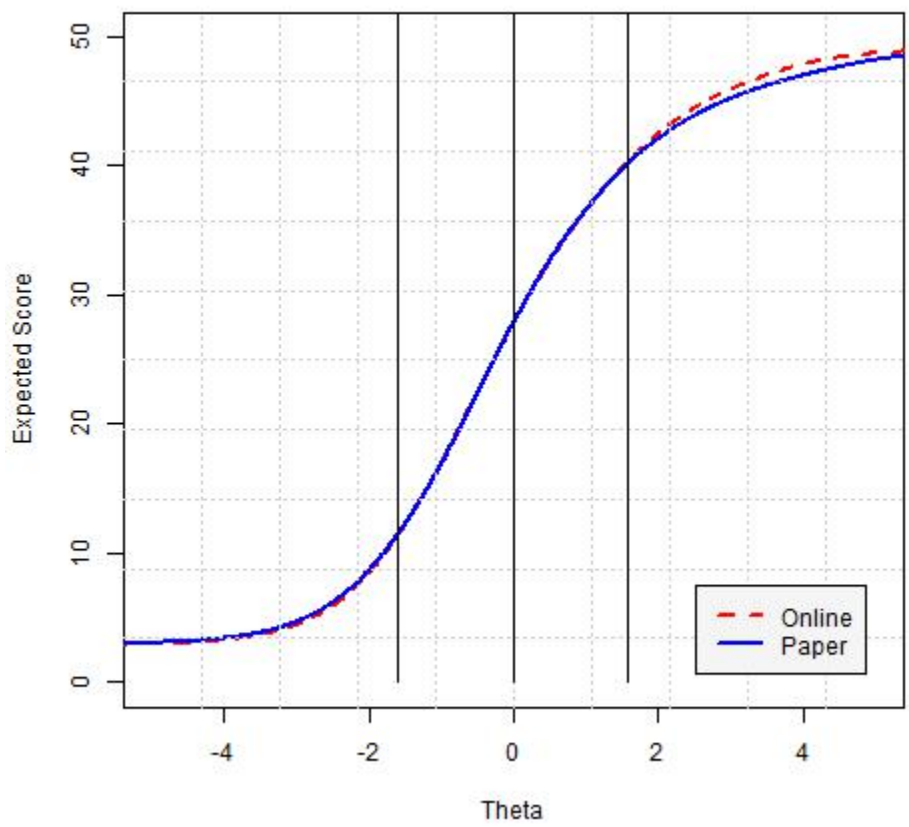


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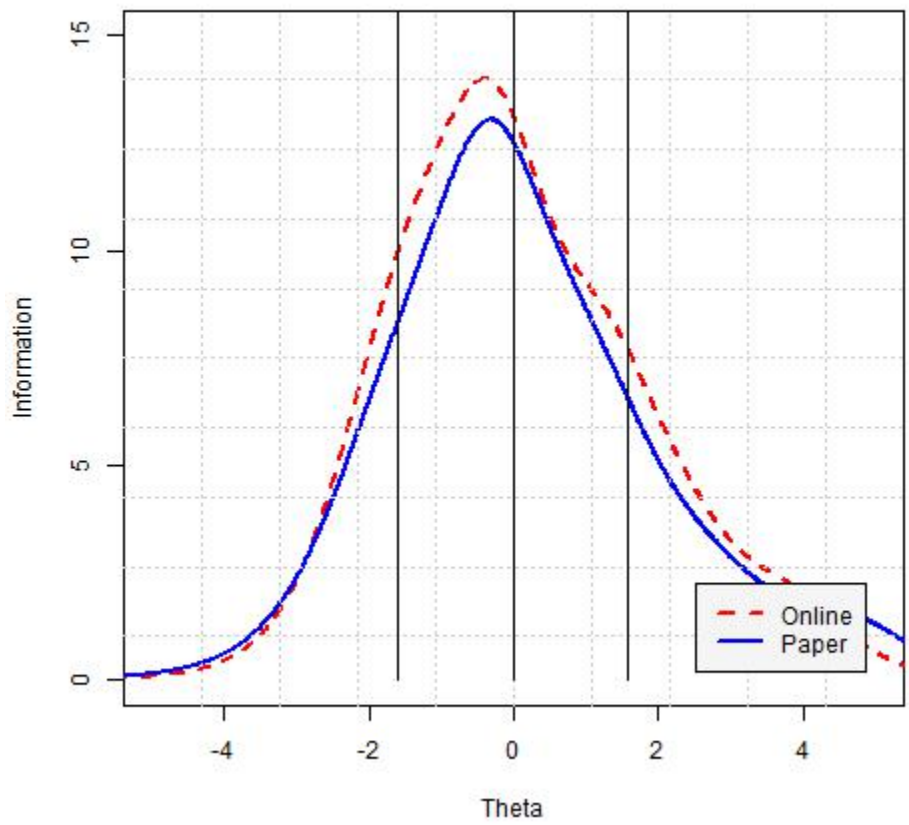
Next-MCAS ELA06 Online-Paper Delta Plot



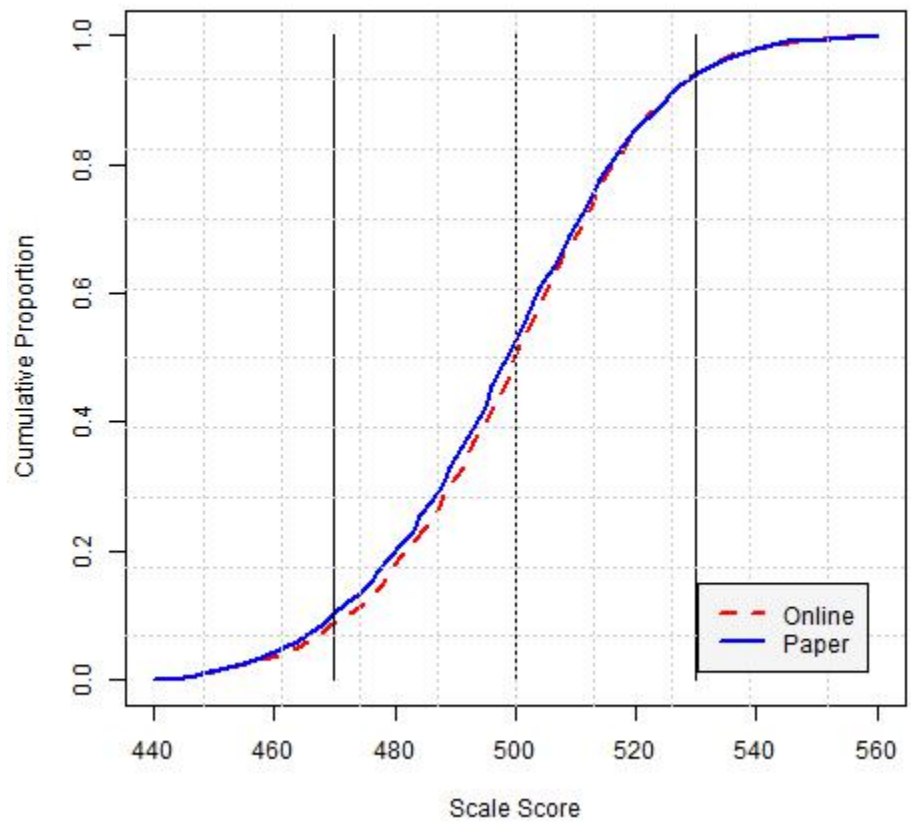
Test Characteristic Curve: ELA Grade 6



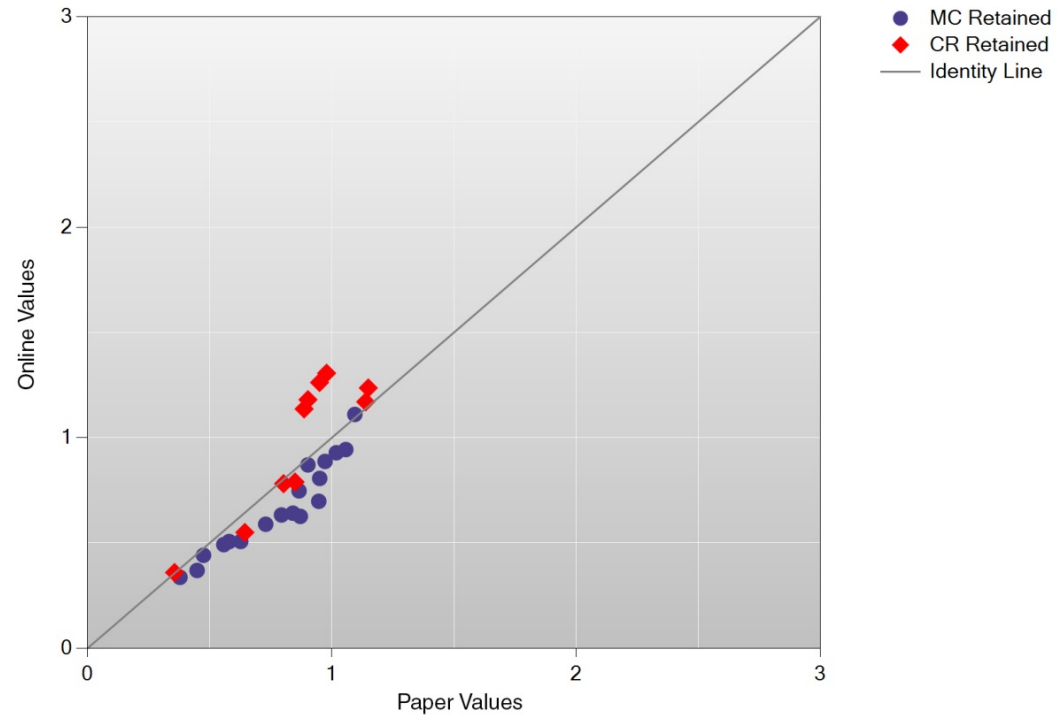
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Cumulative Scale Score Distribution: ELA Grade 6

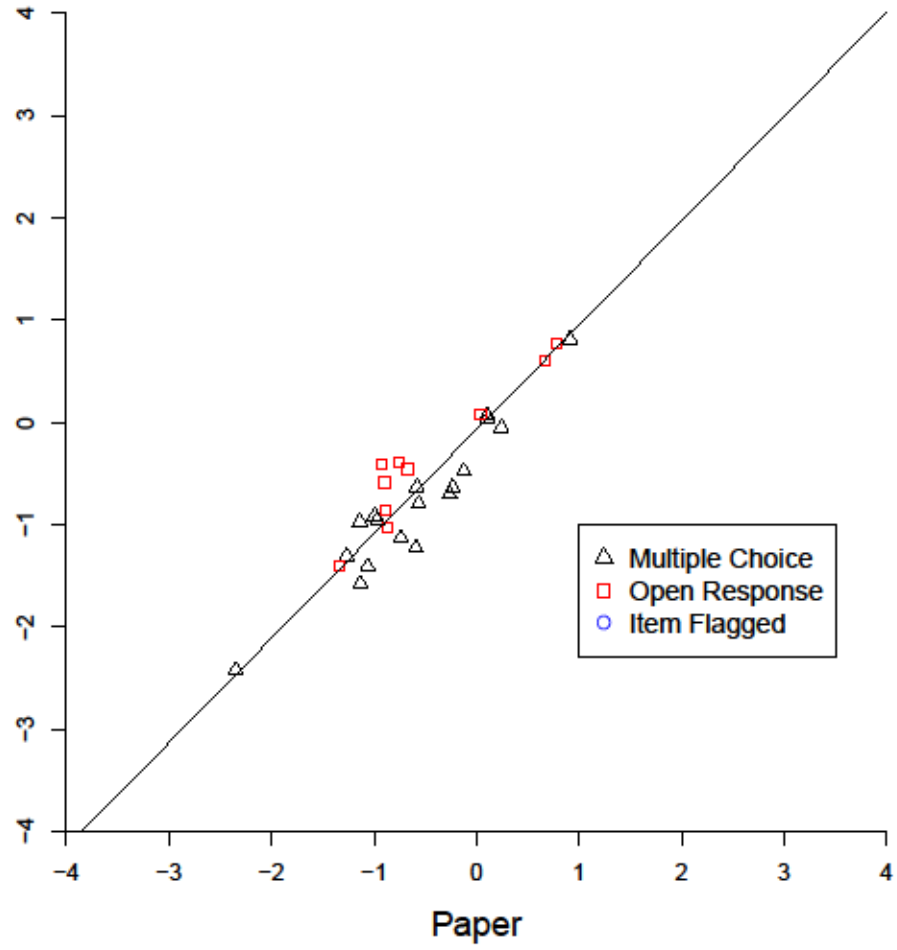


A/A Plot: English Language Arts Grade 7



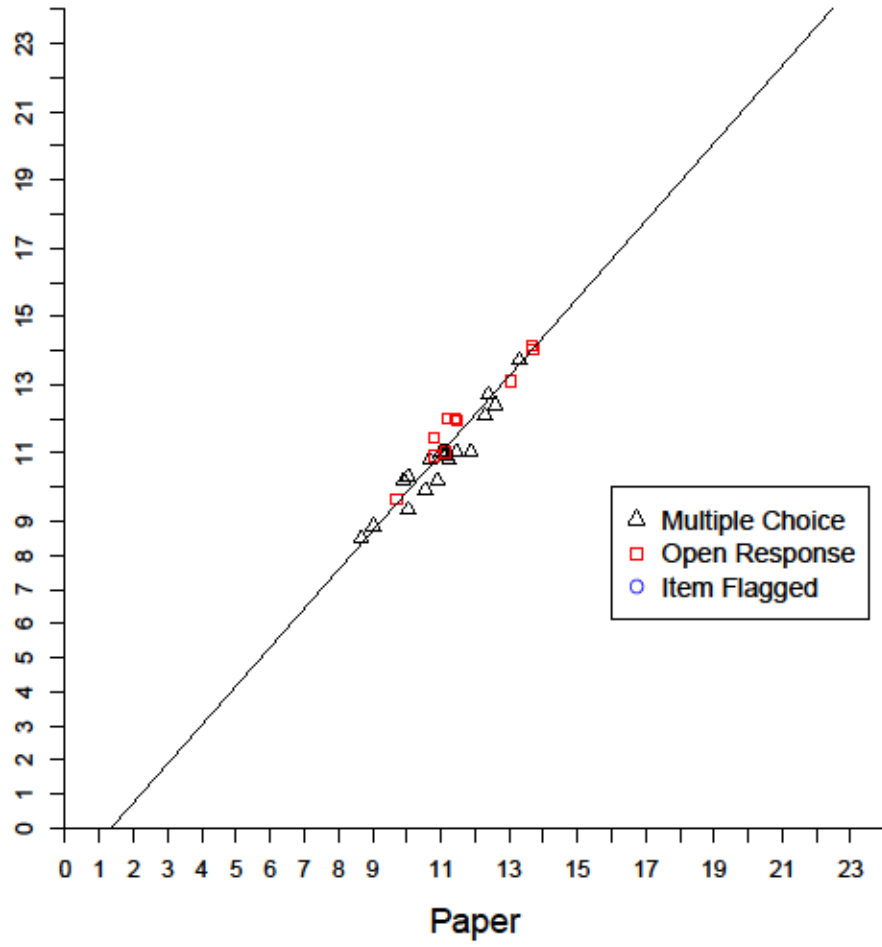
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Next-MCAS ELA07 Online-Paper b-b Plot

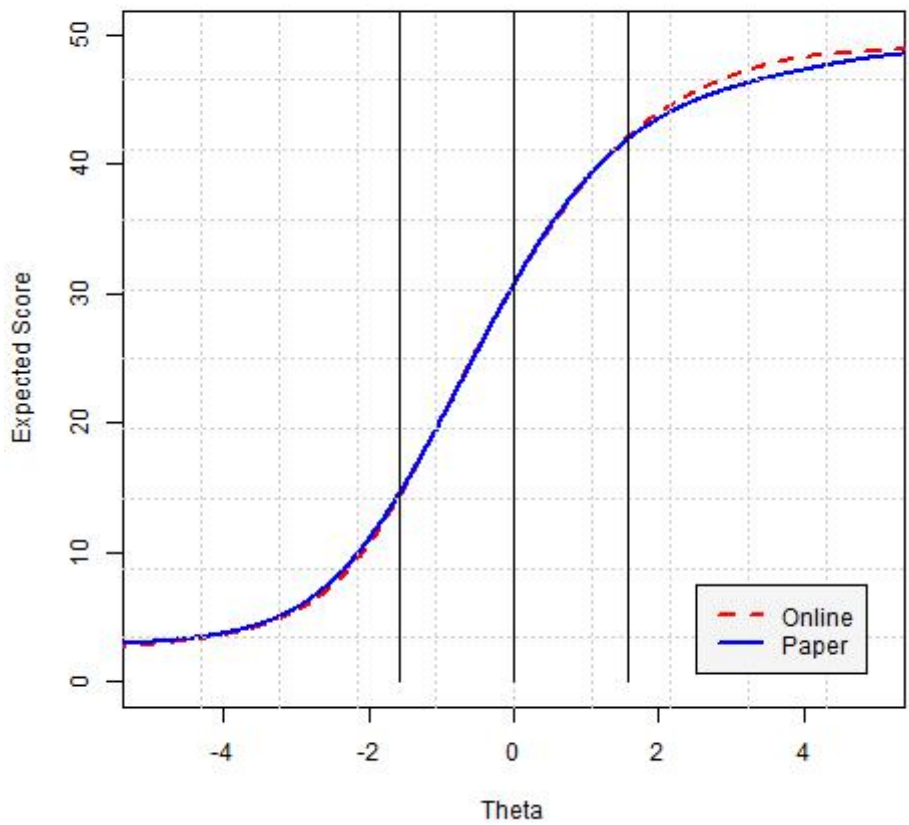


Online

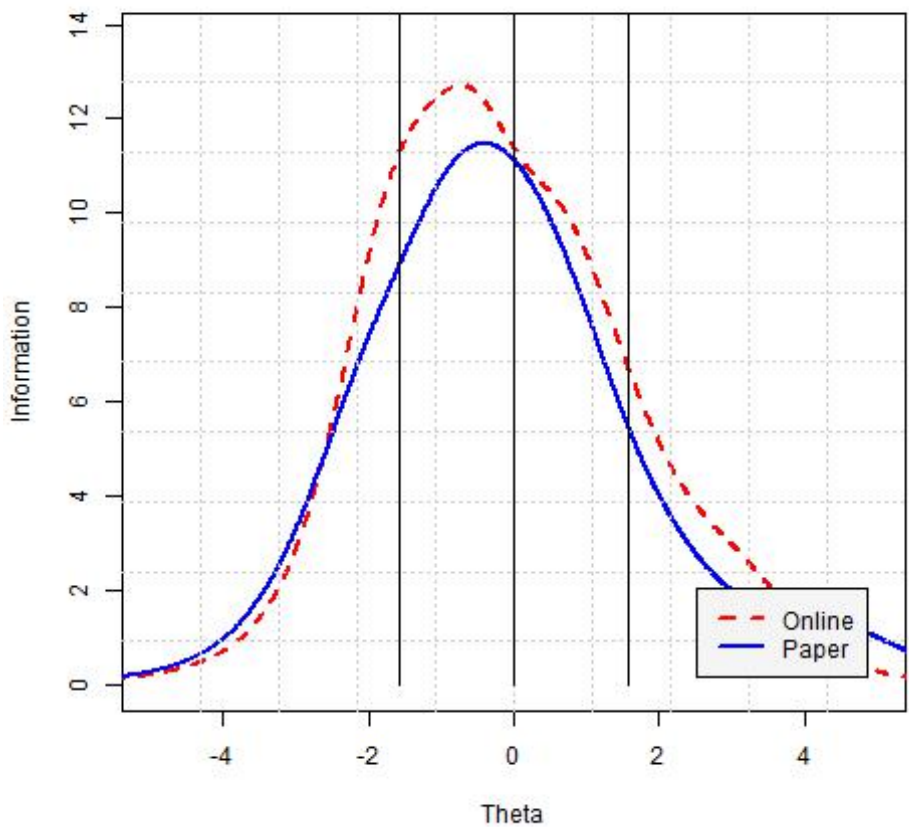
Next-MCAS ELA07 Online-Paper Delta Plot



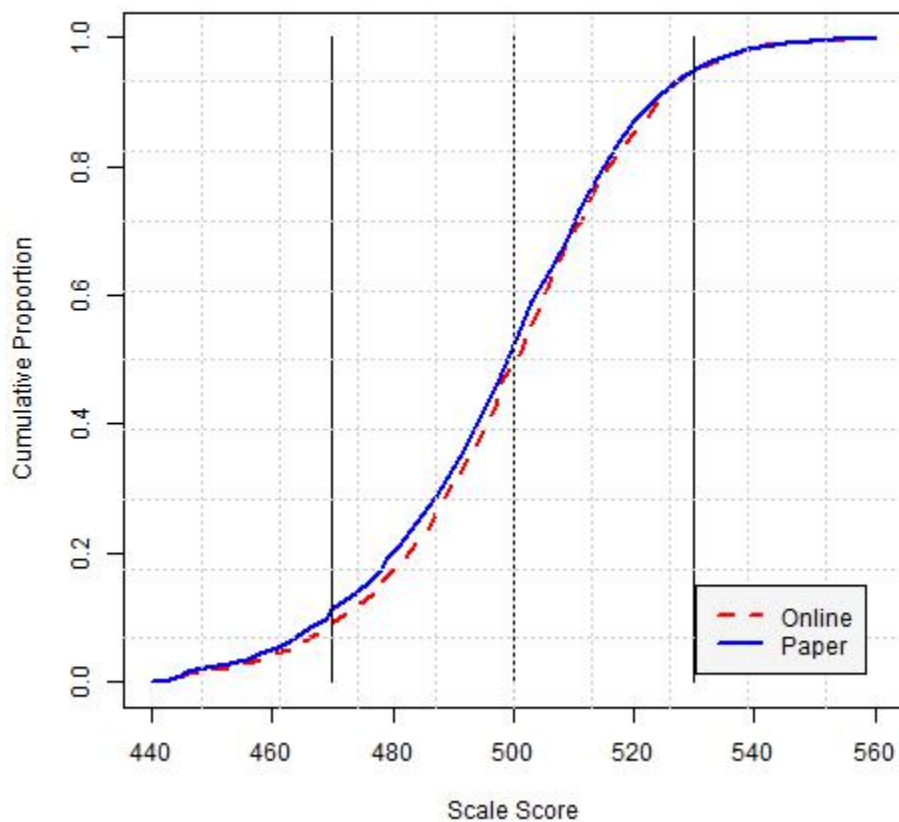
Test Characteristic Curve: ELA Grade 7



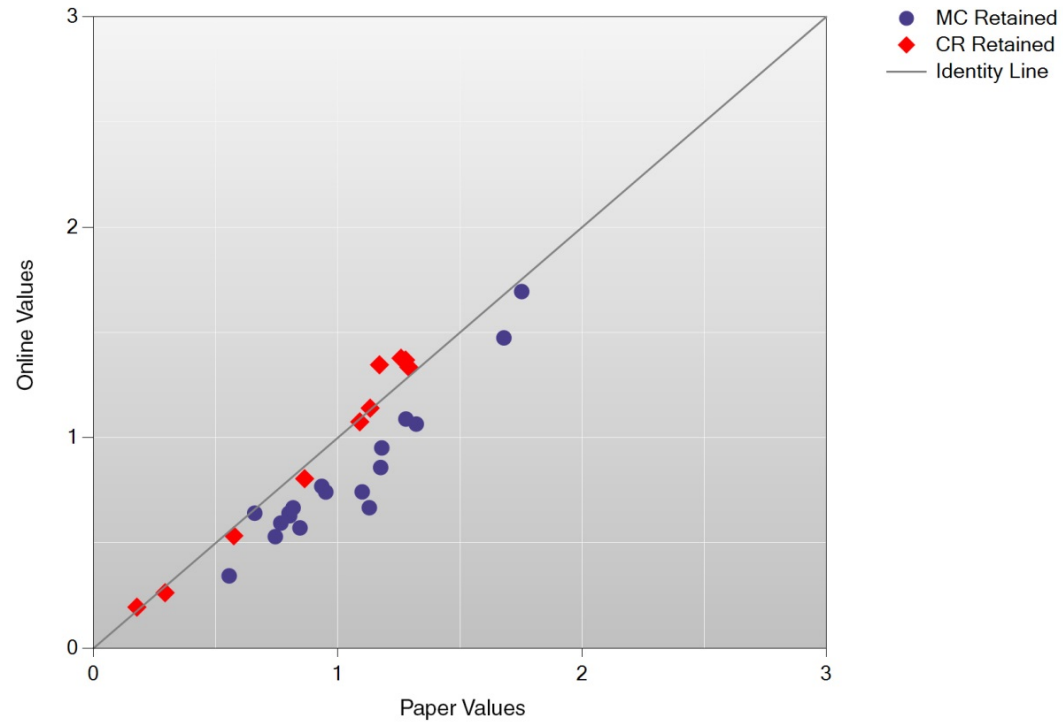
Test Information Function: ELA Grade 7



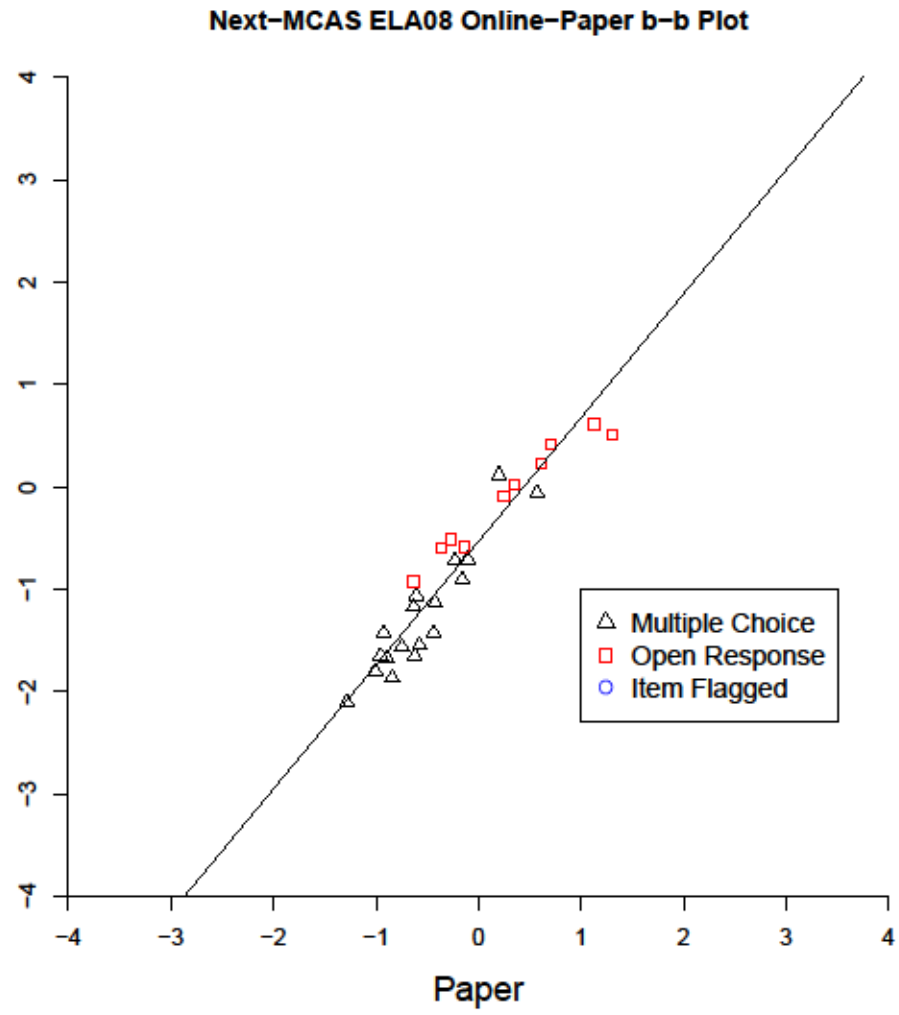
Cumulative Scale Score Distribution: ELA Grade 7



A/A Plot: English Language Arts Grade 8

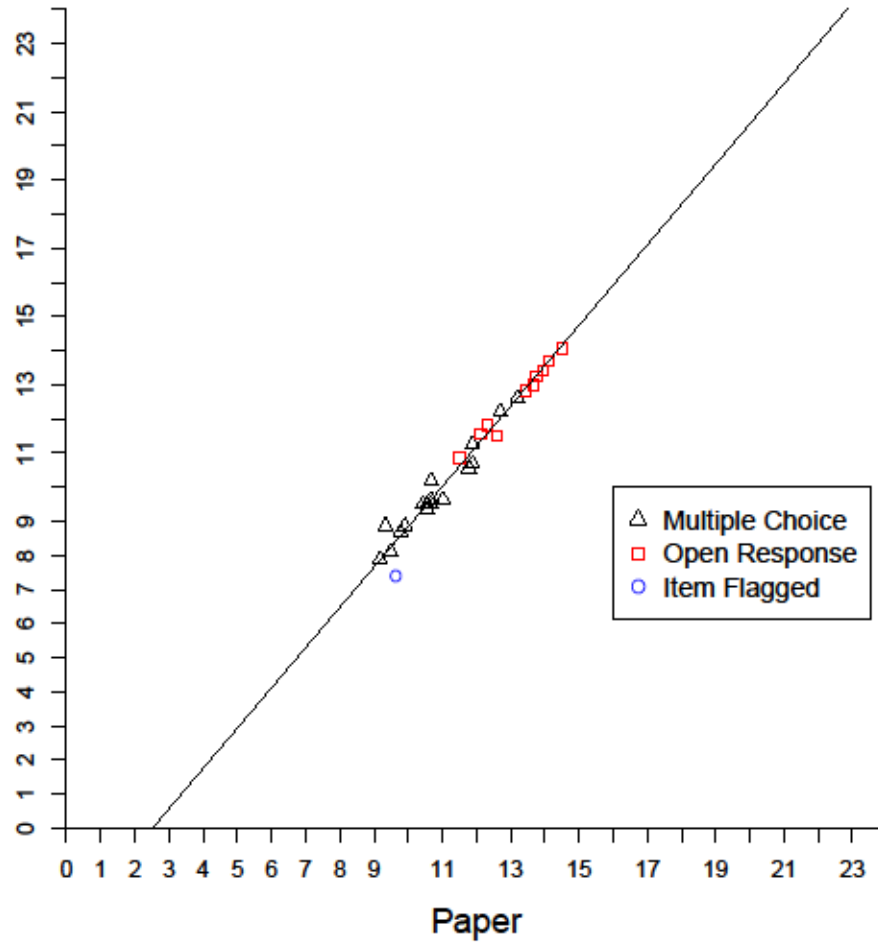


Online

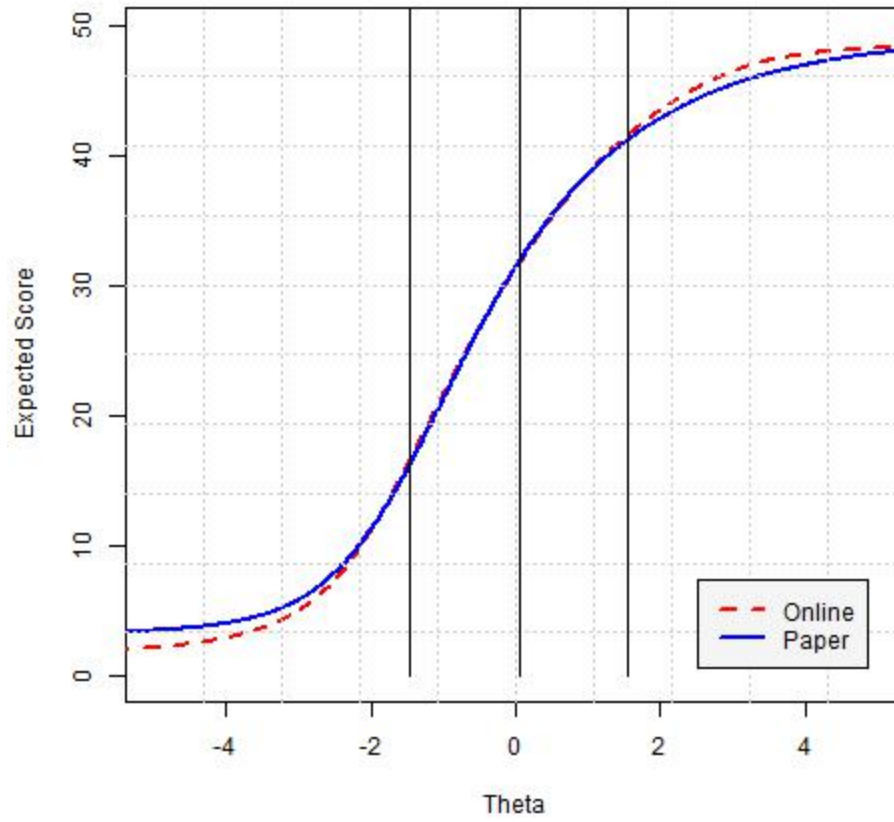


Online

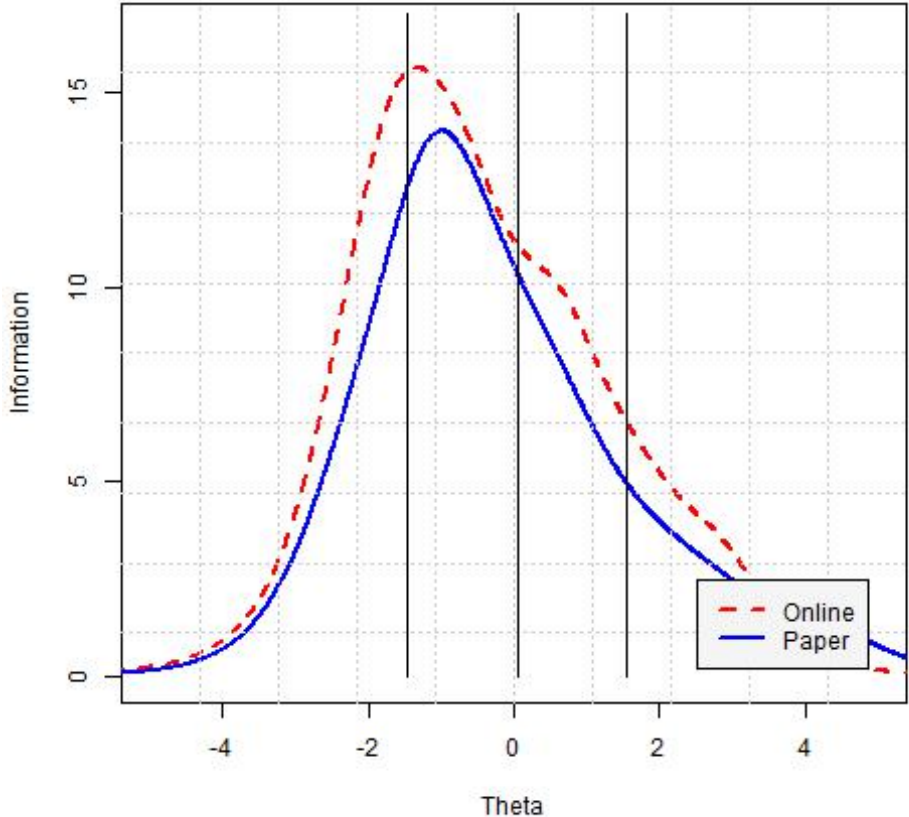
Next-MCAS ELA08 Online-Paper Delta Plot



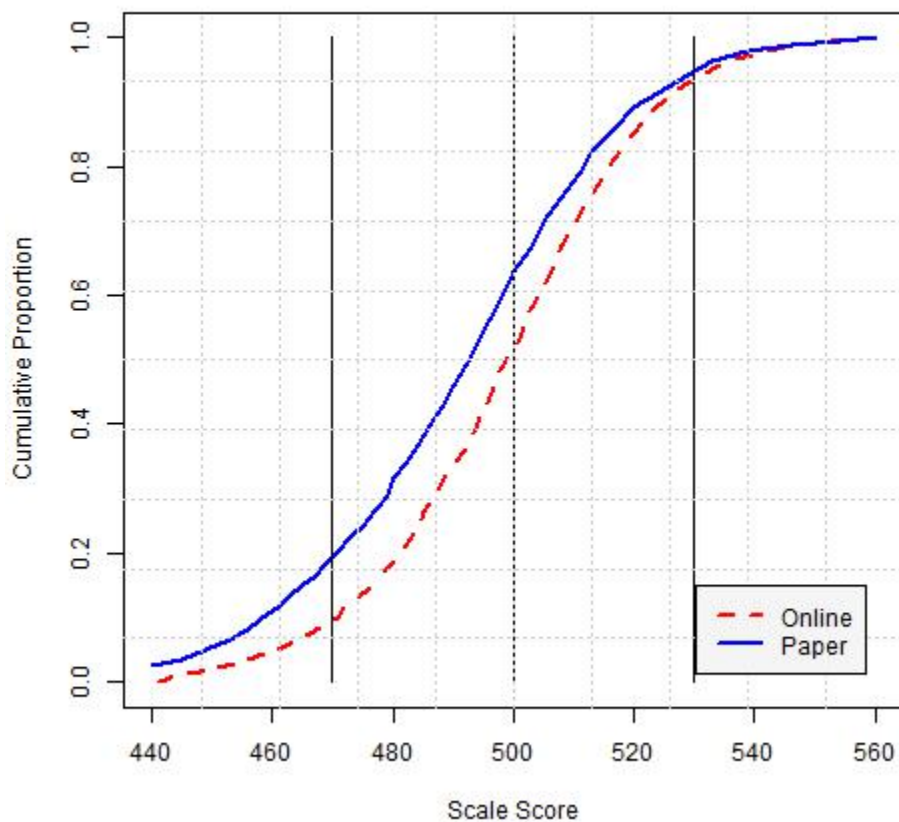
Test Characteristic Curve: ELA Grade 8



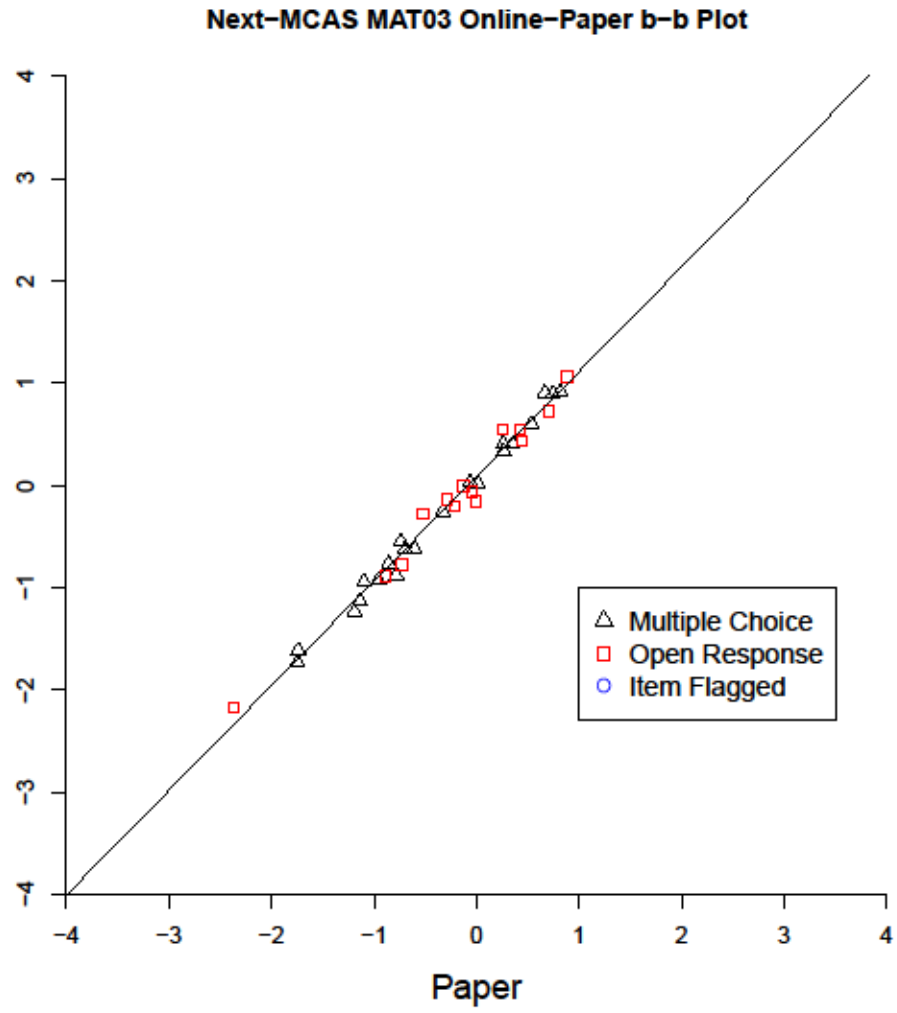
Test Information Function: ELA Grade 8



Cumulative Scale Score Distribution: ELA Grade 8

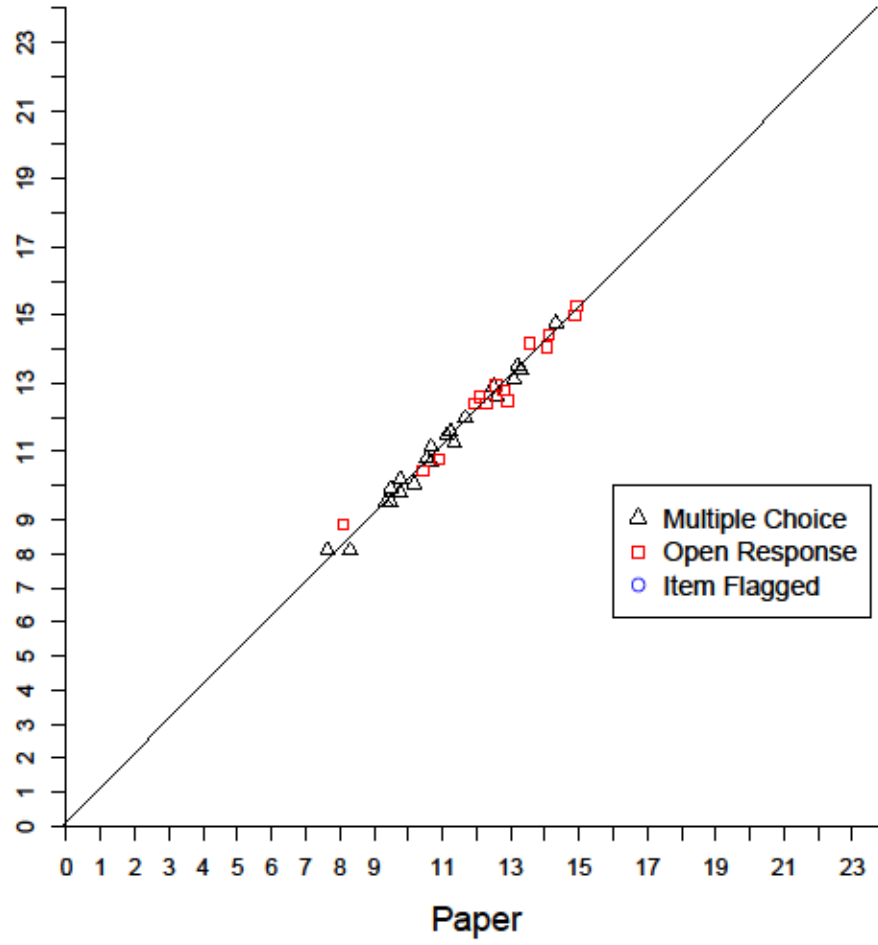


Online

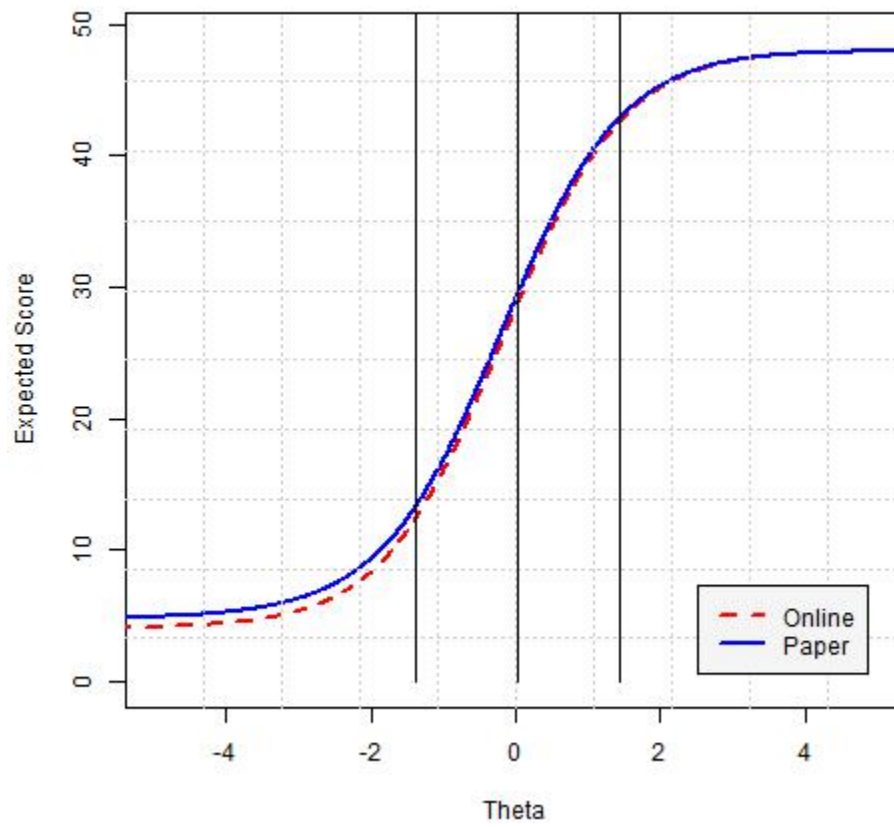


Online

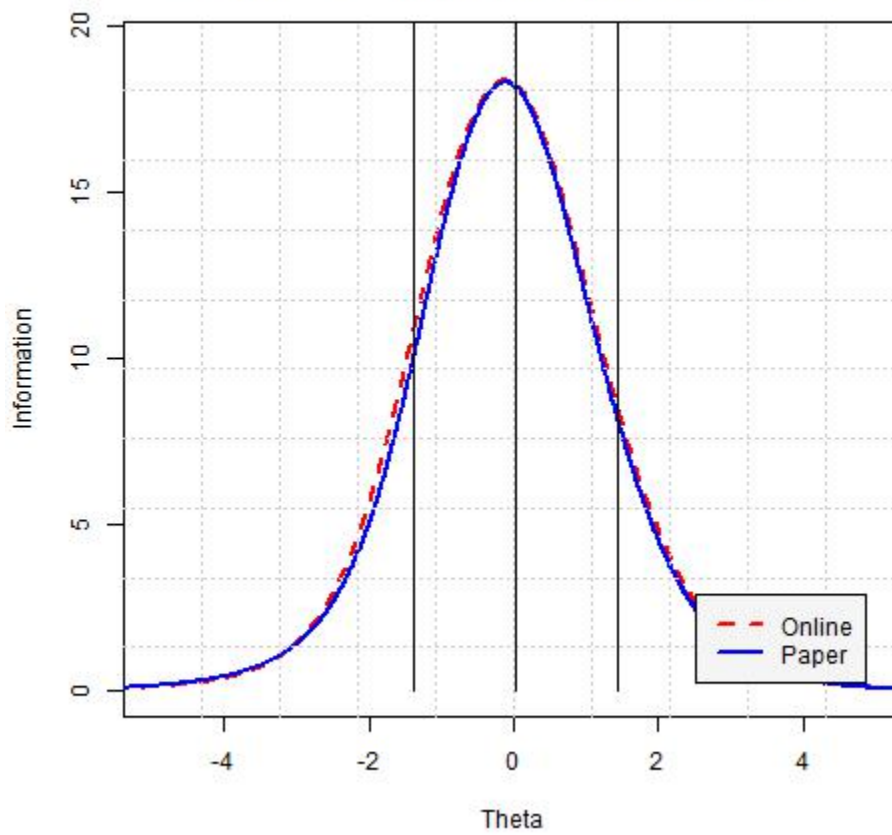
Next-MCAS MAT03 Online-Paper Delta Plot



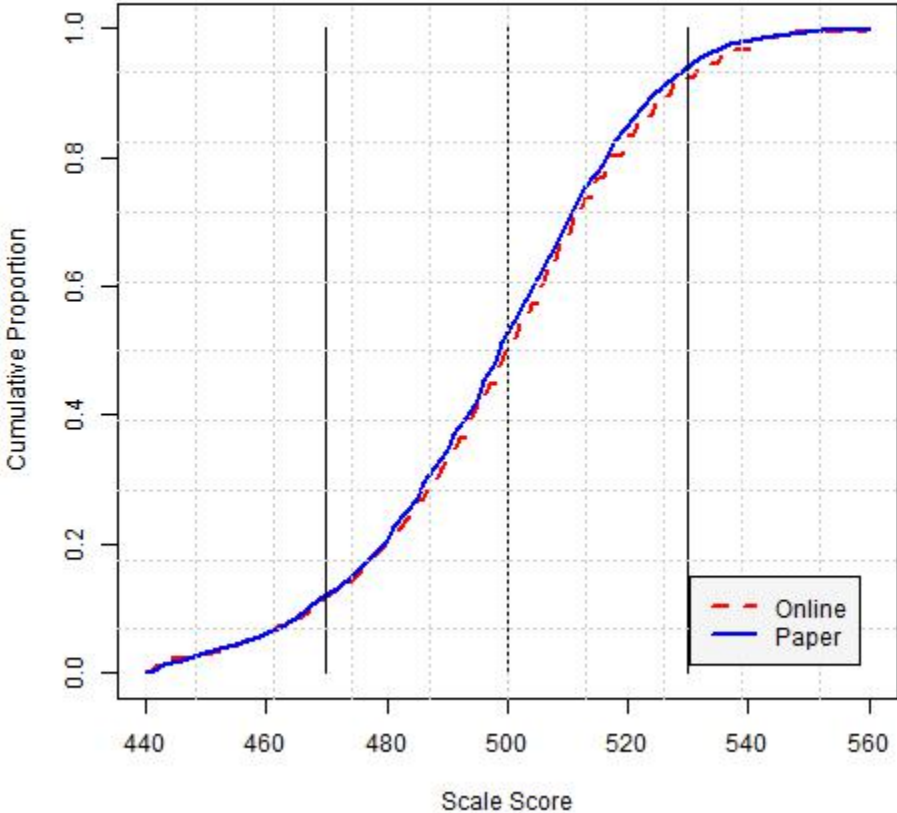
Test Characteristic Curve: Mathematics Grade 3

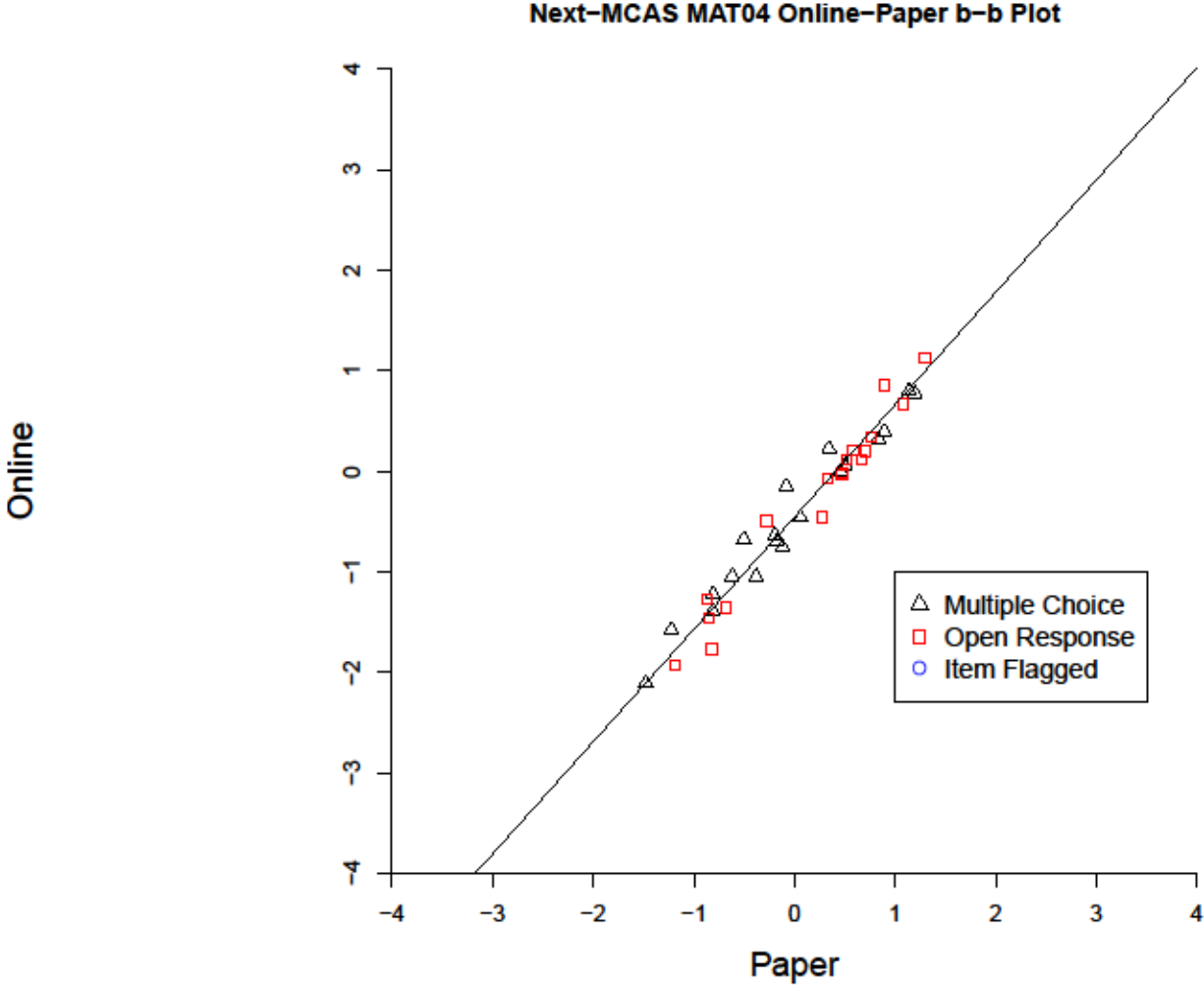


Test Information Function: Mathematics Grade 3



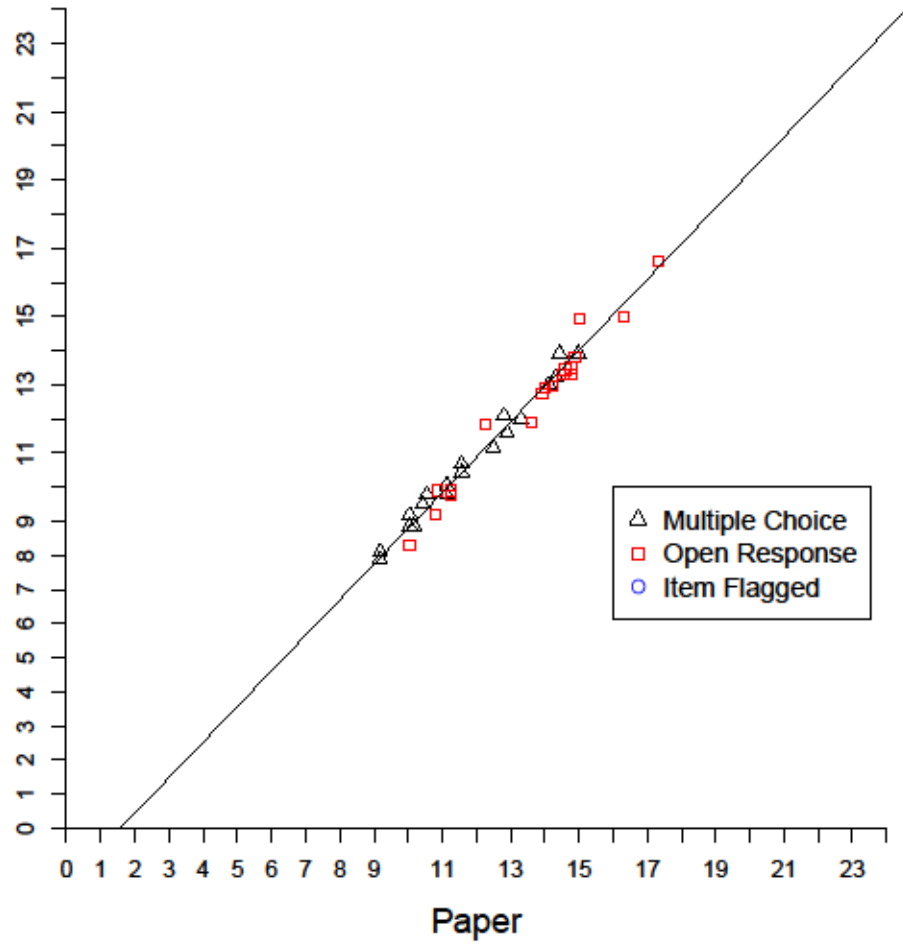
Cumulative Scale Score Distribution: Mathematics Grade 3



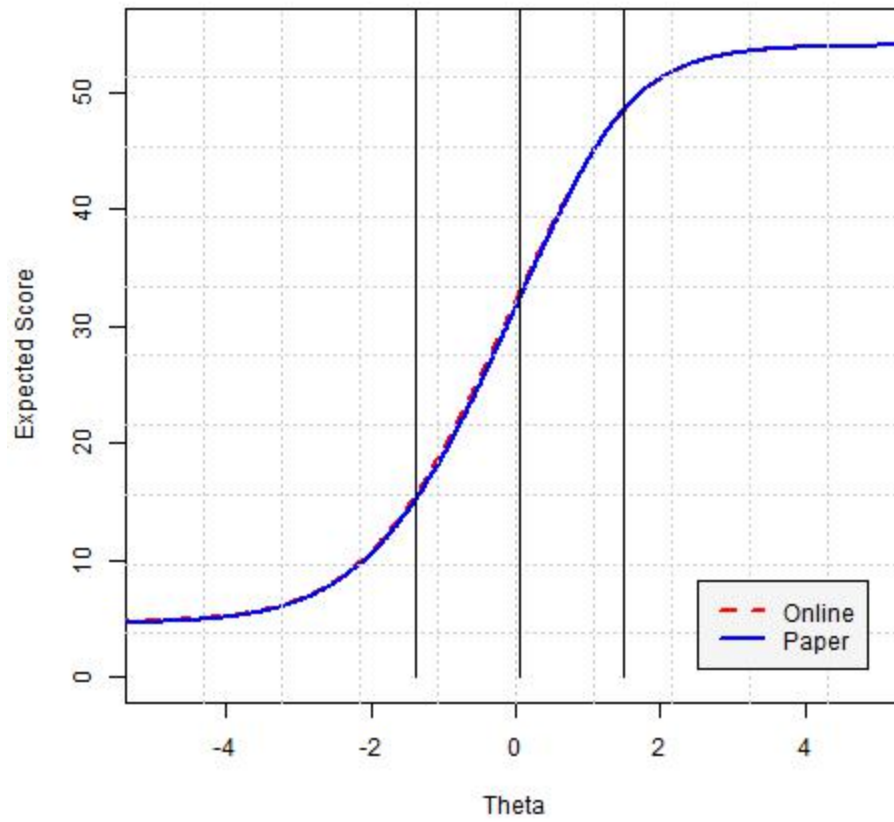


Online

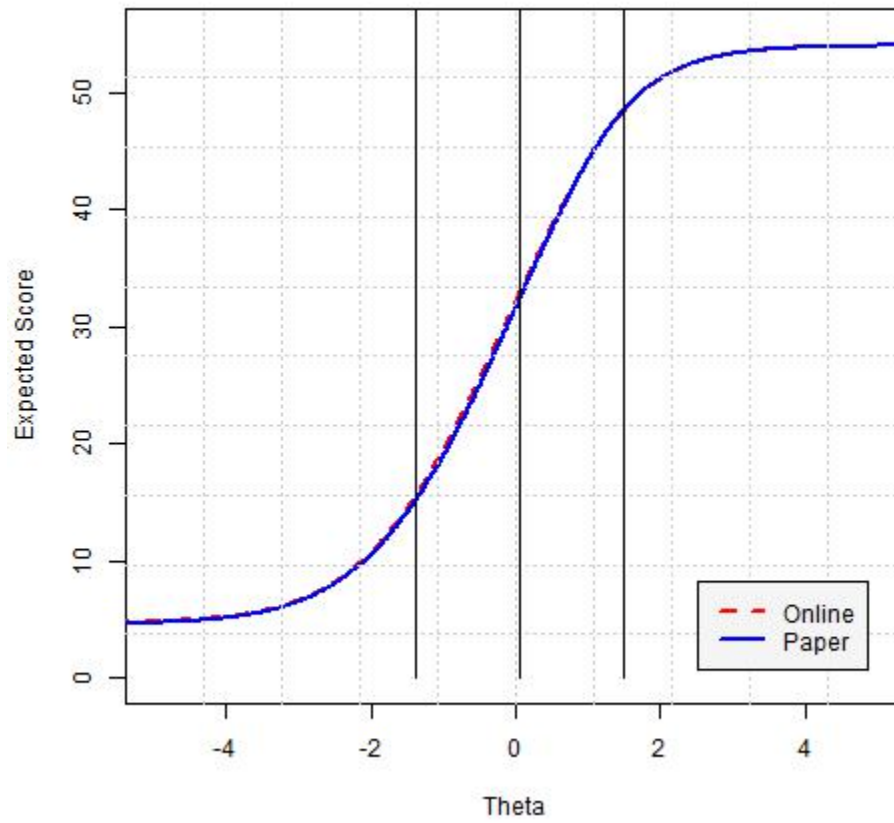
Next-MCAS MAT04 Online-Paper Delta Plot



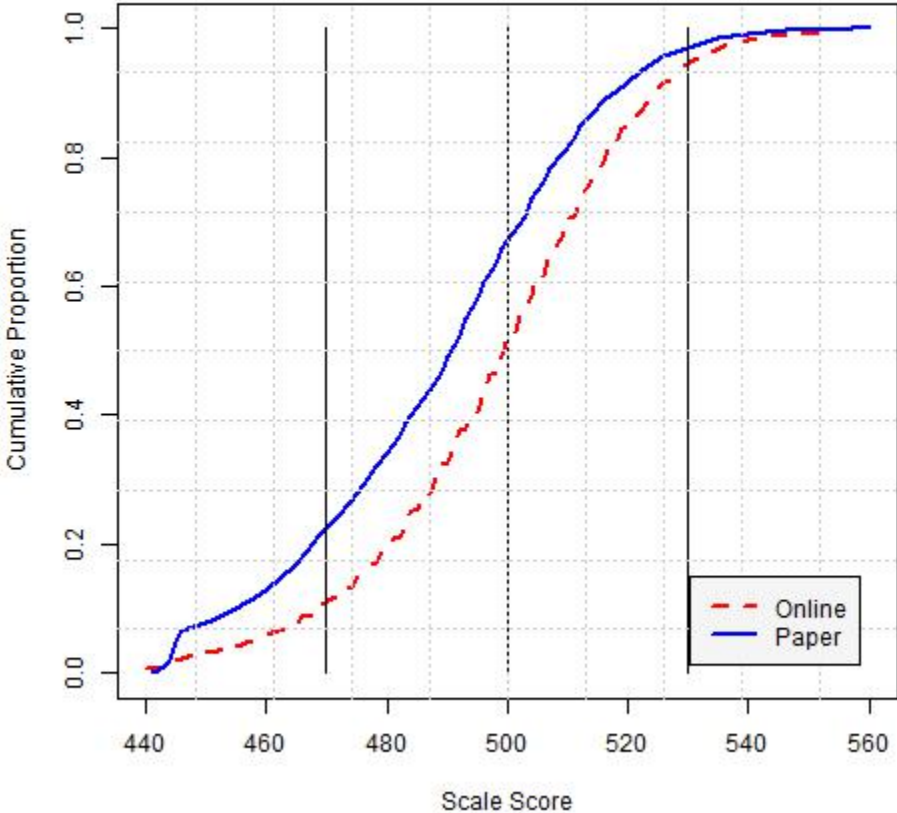
Test Characteristic Curve: Mathematics Grade 4



Test Characteristic Curve: Mathematics Grade 4

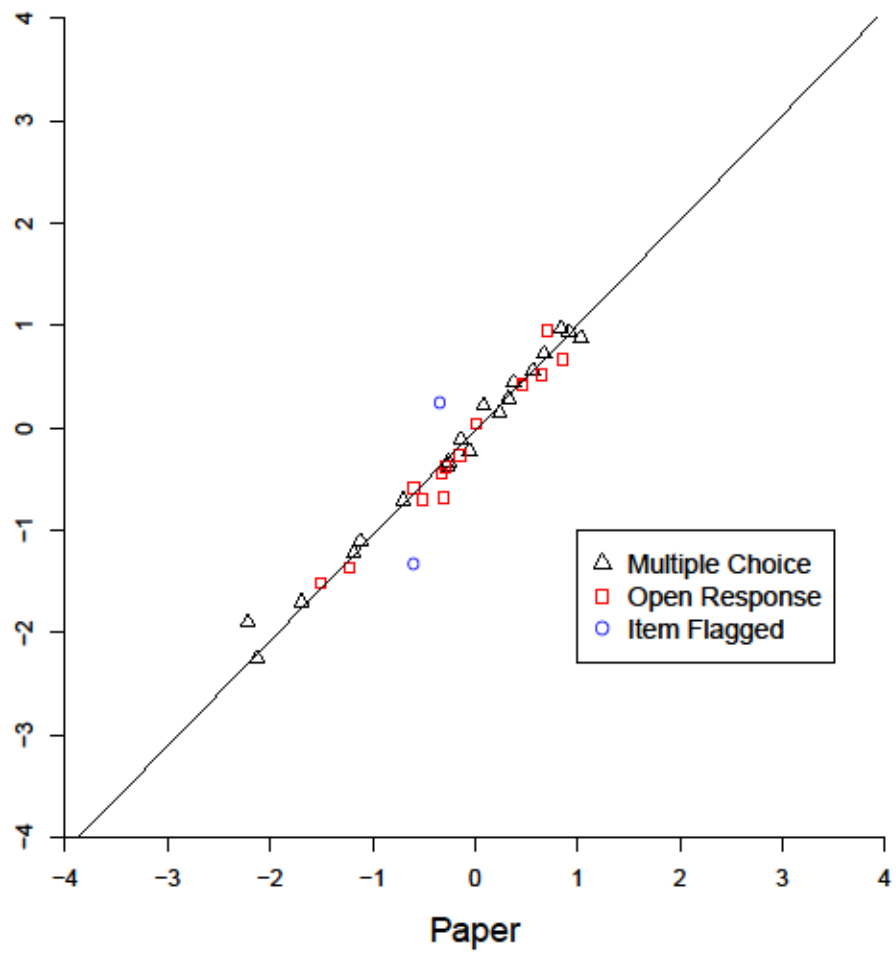


Cumulative Scale Score Distribution: Mathematics Grade 4



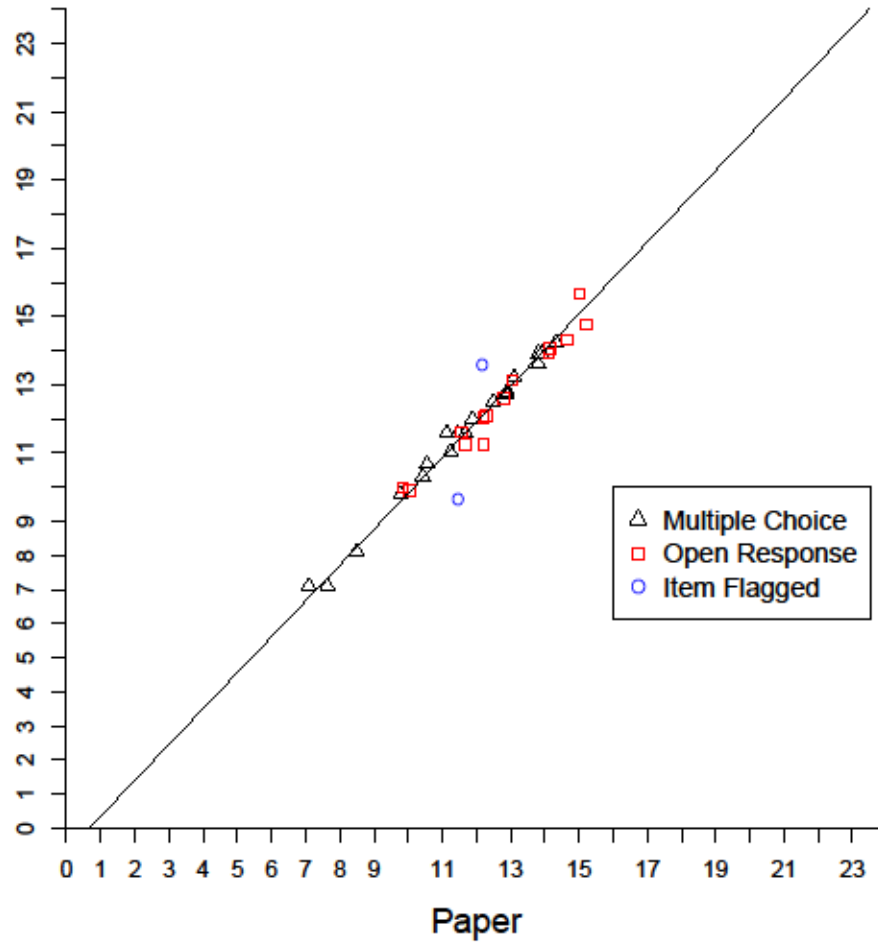
Online

Next-MCAS MAT05 Online-Paper b-b Plot

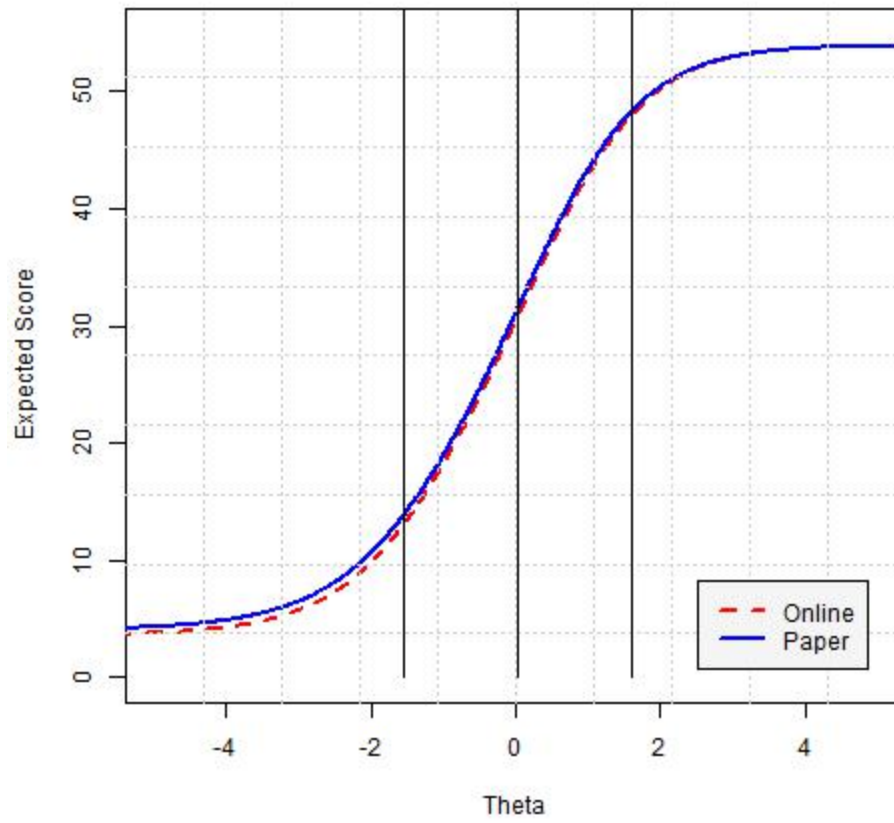


Online

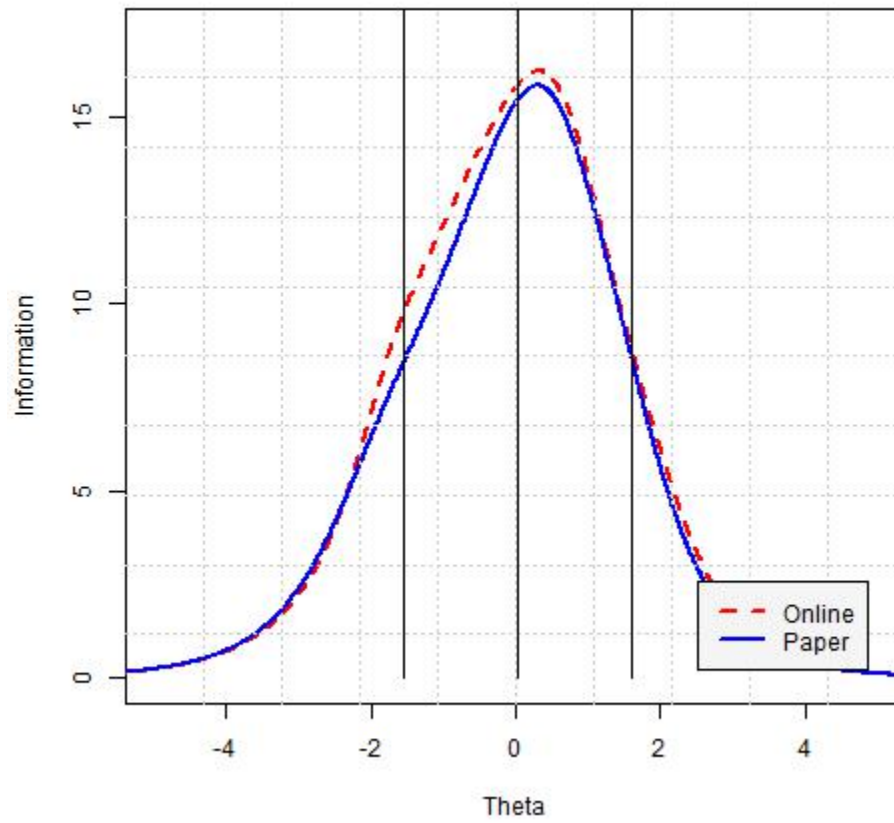
Next-MCAS MAT05 Online-Paper Delta Plot



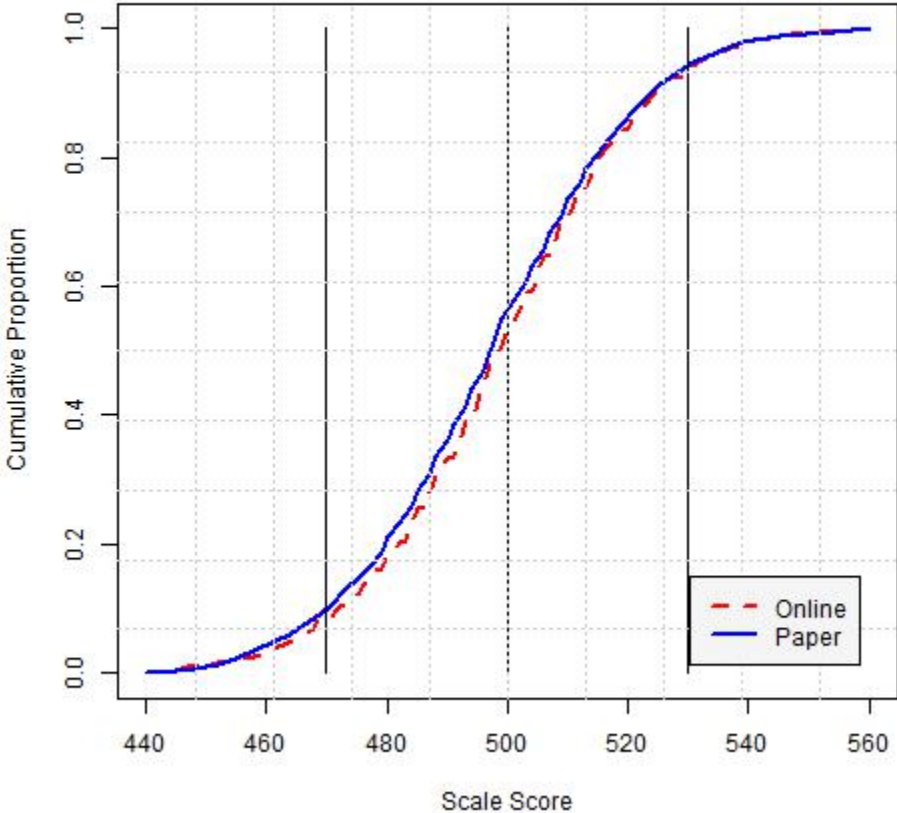
Test Characteristic Curve: Mathematics Grade 5



Test Information Function: Mathematics Grade 5

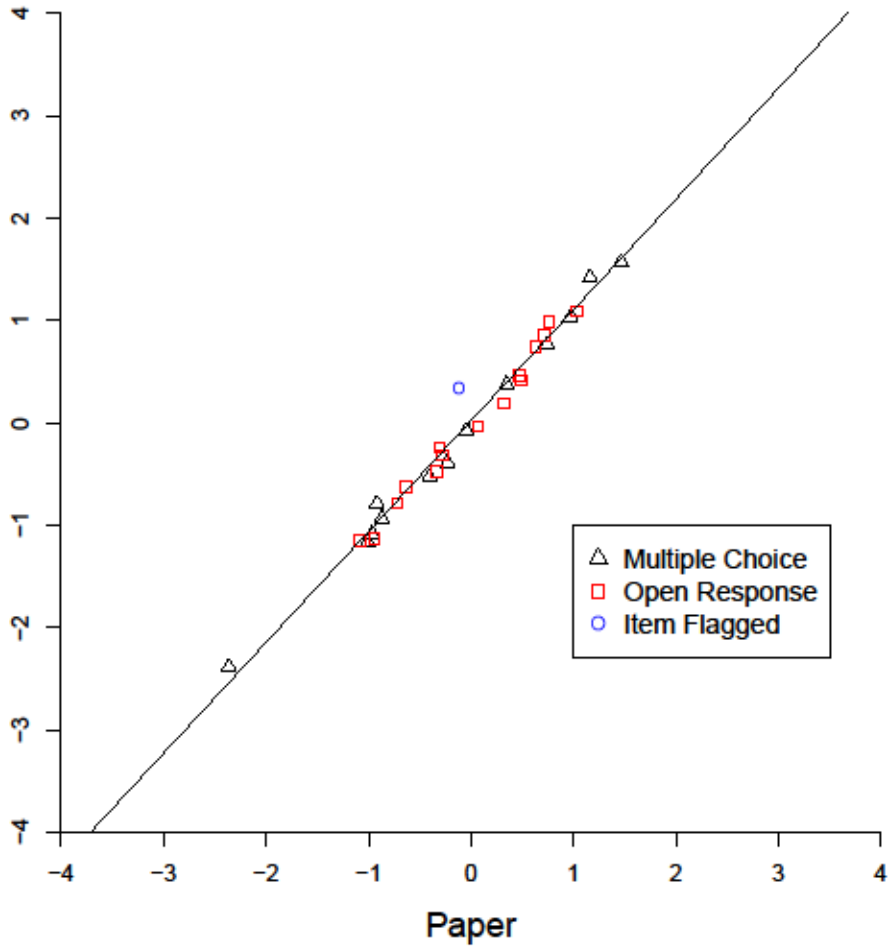


Cumulative Scale Score Distribution: Mathematics Grade 5



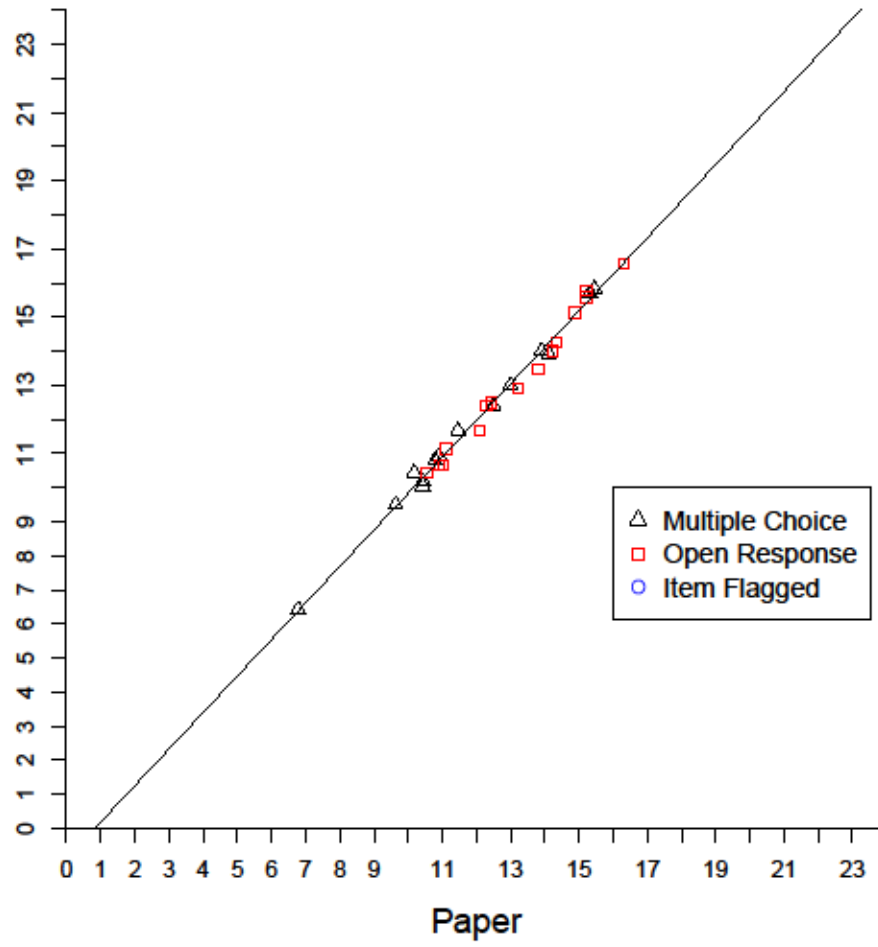
Online

Next-MCAS MAT06 Online-Paper b-b Plot

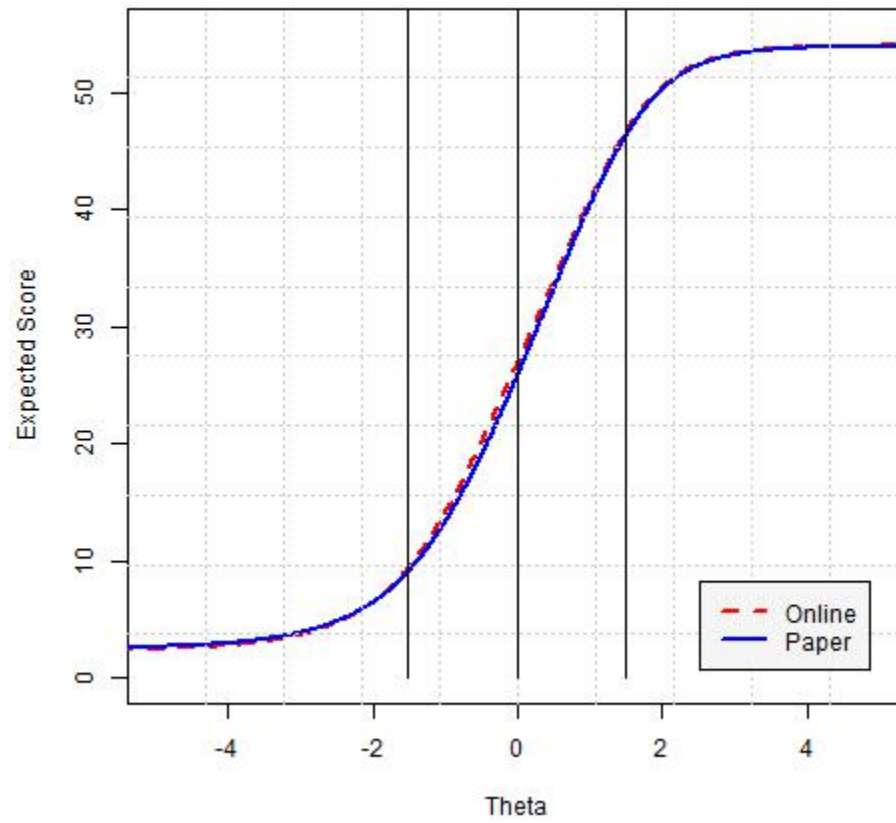


Online

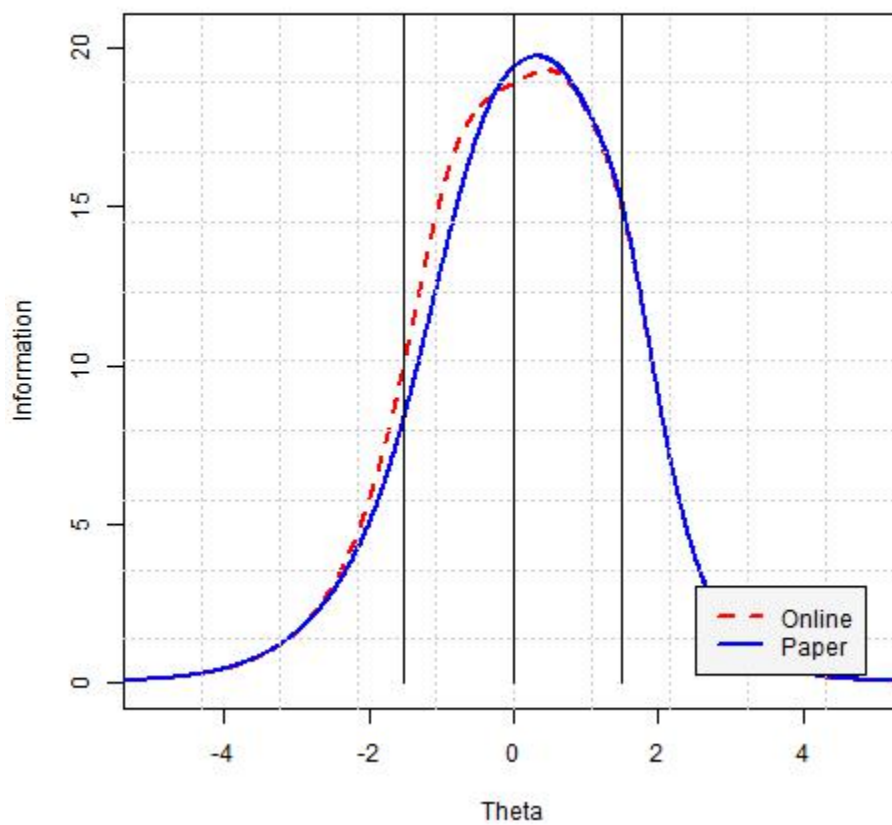
Next-MCAS MAT06 Online-Paper Delta Plot



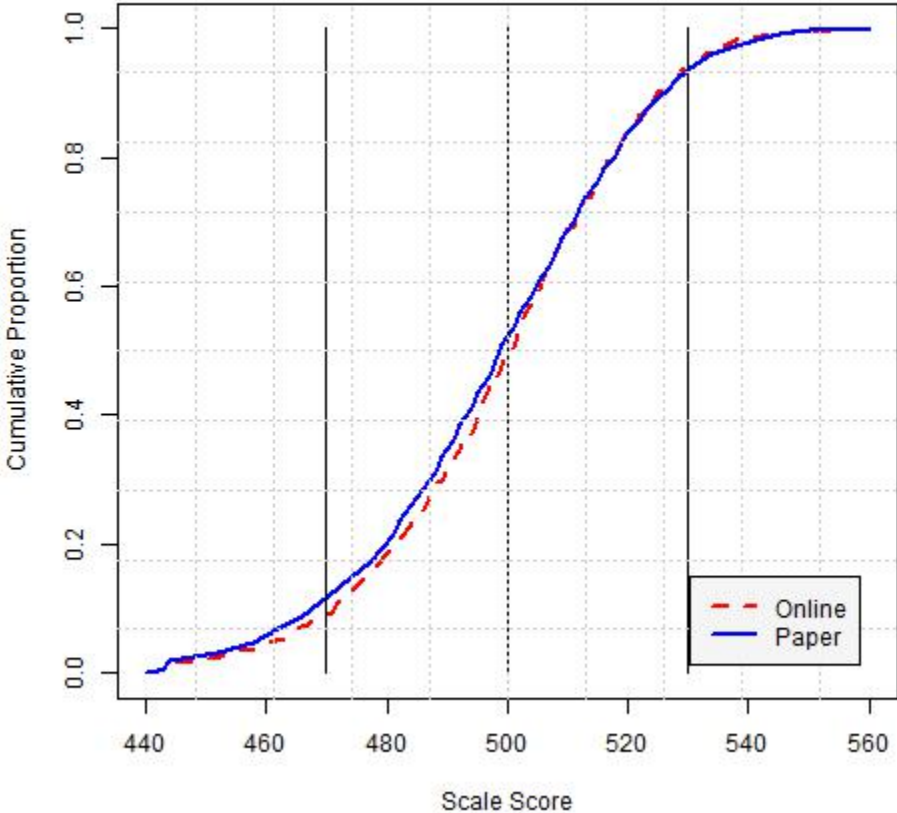
Test Characteristic Curve: Mathematics Grade 6



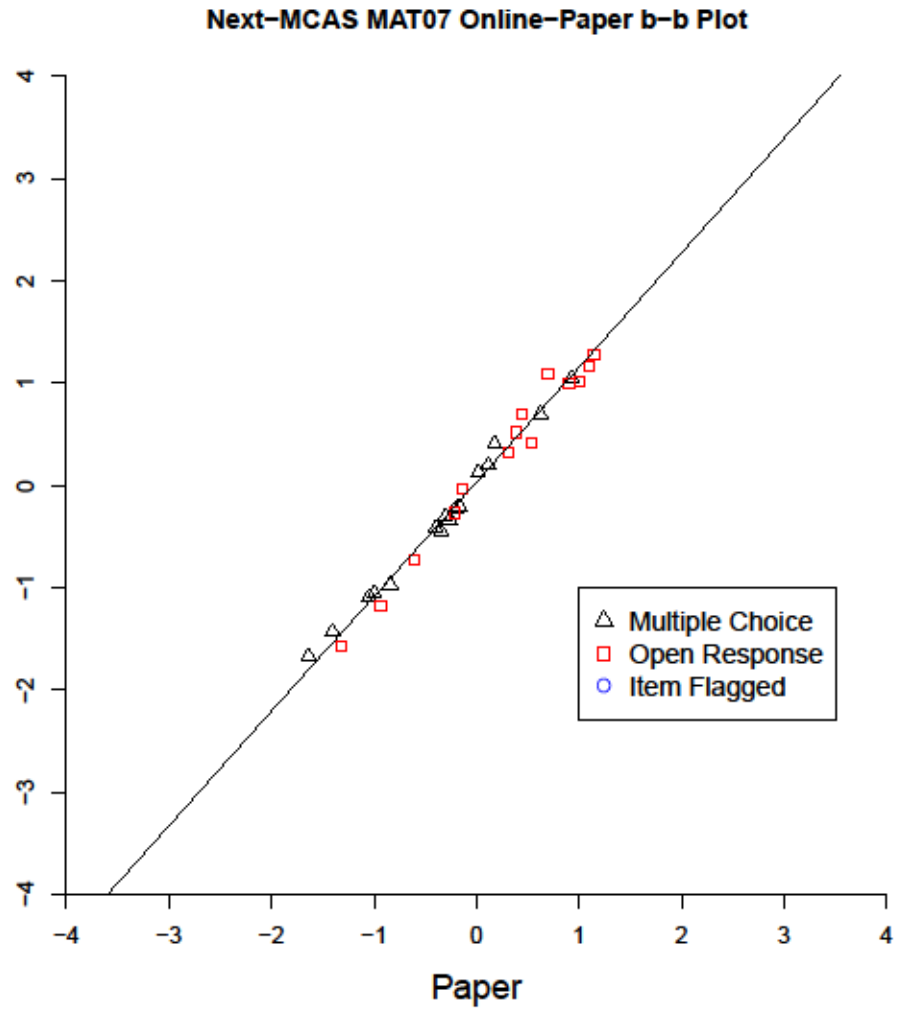
Test Information Function: Mathematics Grade 6



Cumulative Scale Score Distribution: Mathematics Grade 6

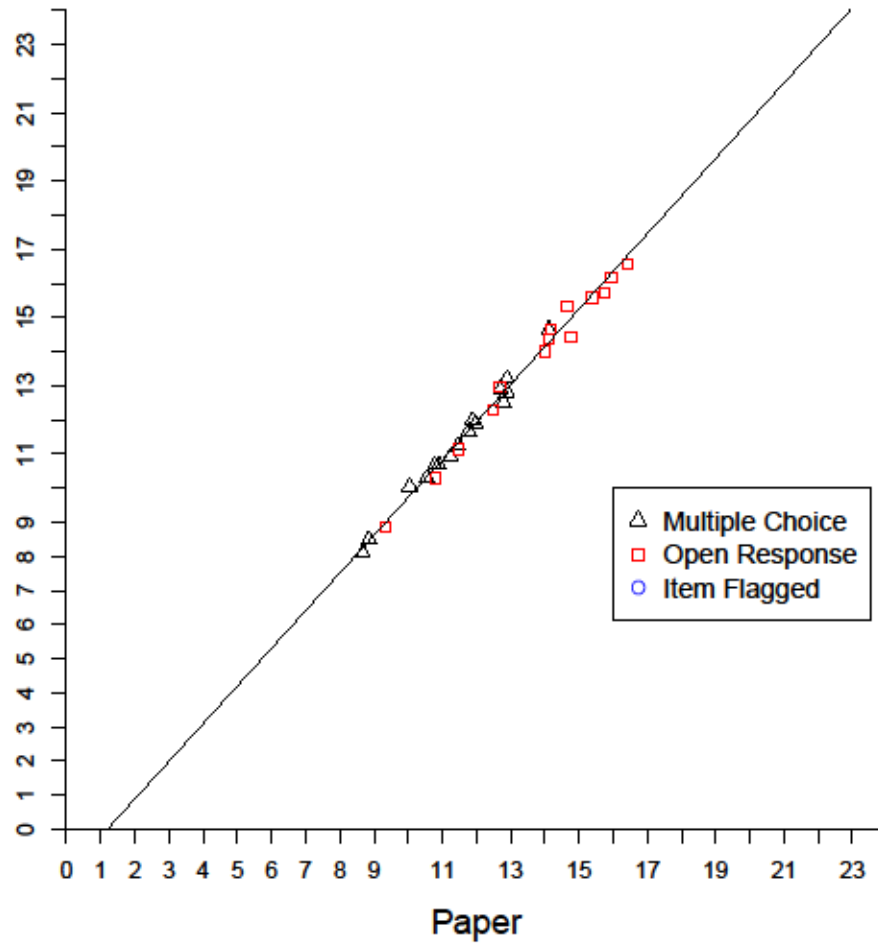


Online

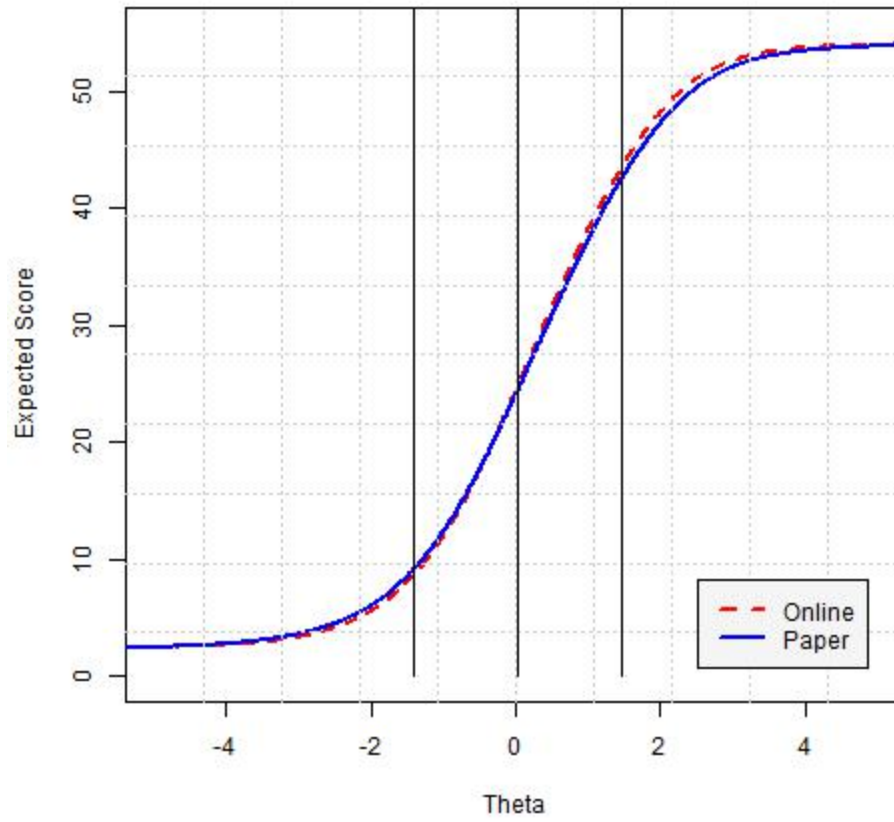


Online

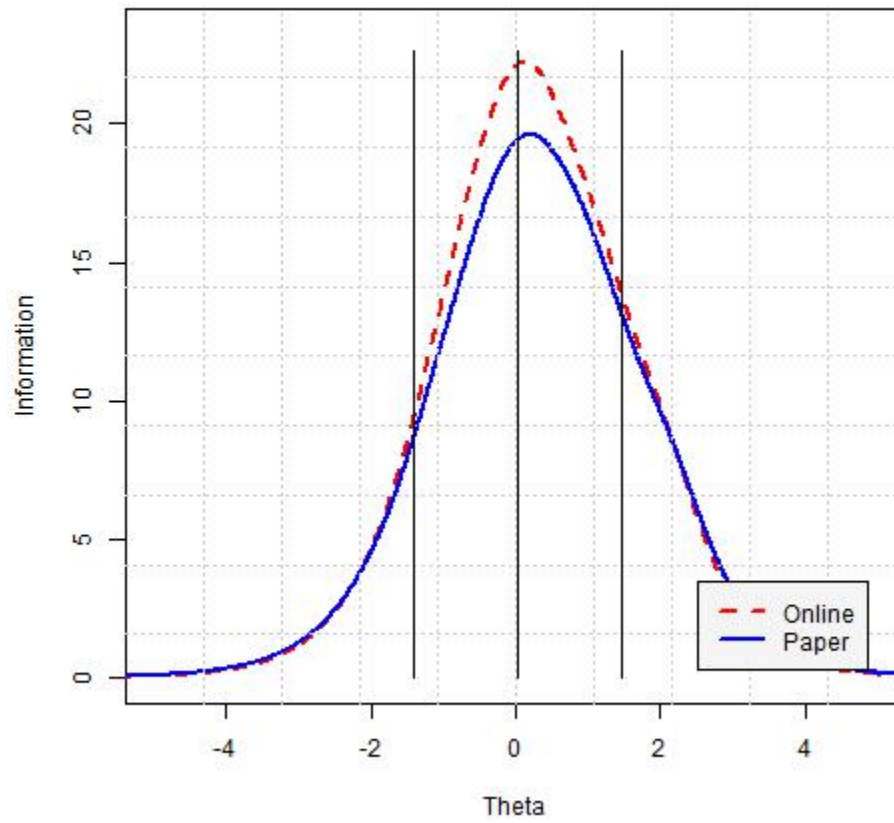
Next-MCAS MAT07 Online-Paper Delta Plot



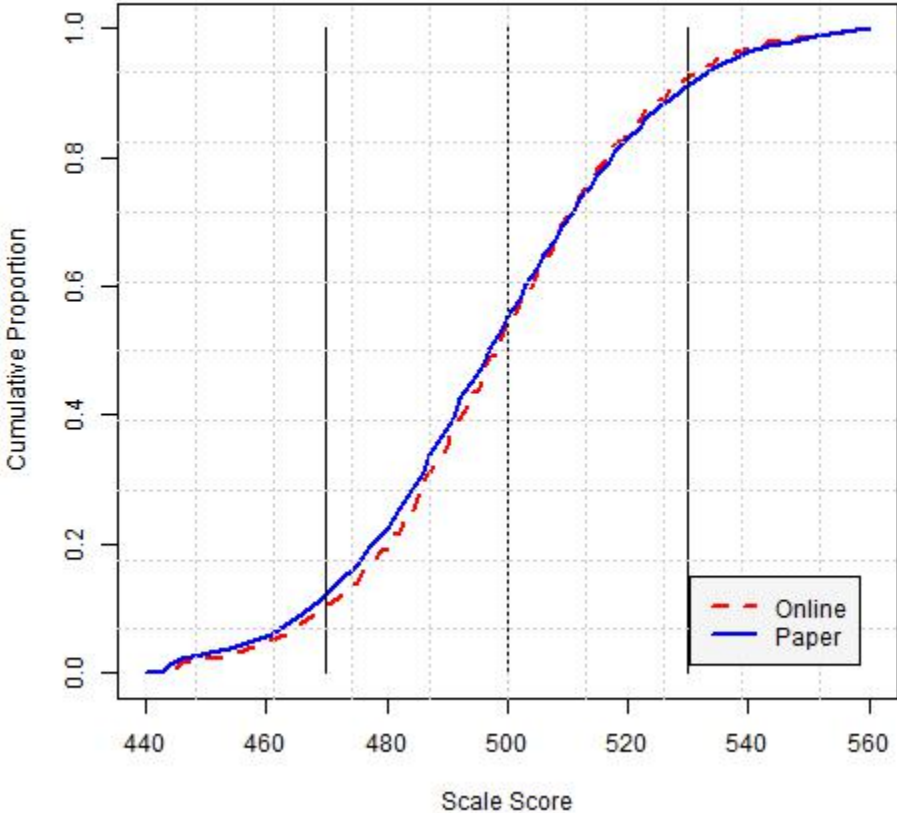
Test Characteristic Curve: Mathematics Grade 7



Test Information Function: Mathematics Grade 7

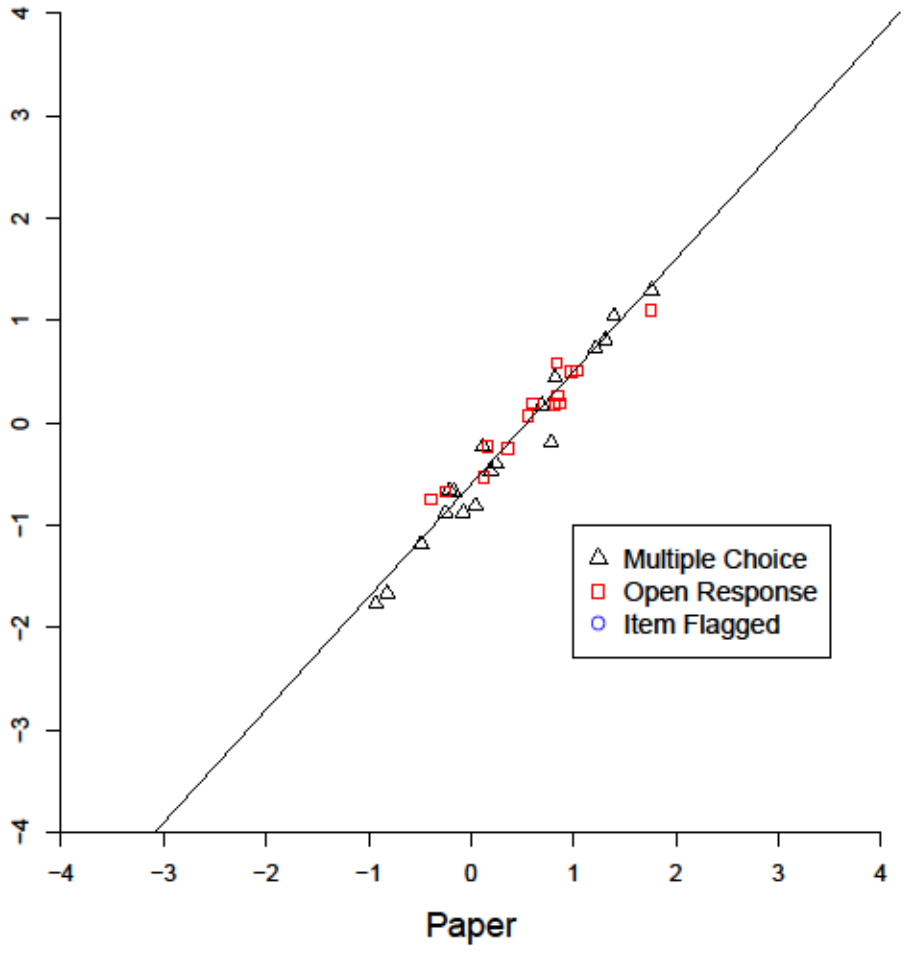


Cumulative Scale Score Distribution: Mathematics Grade 7



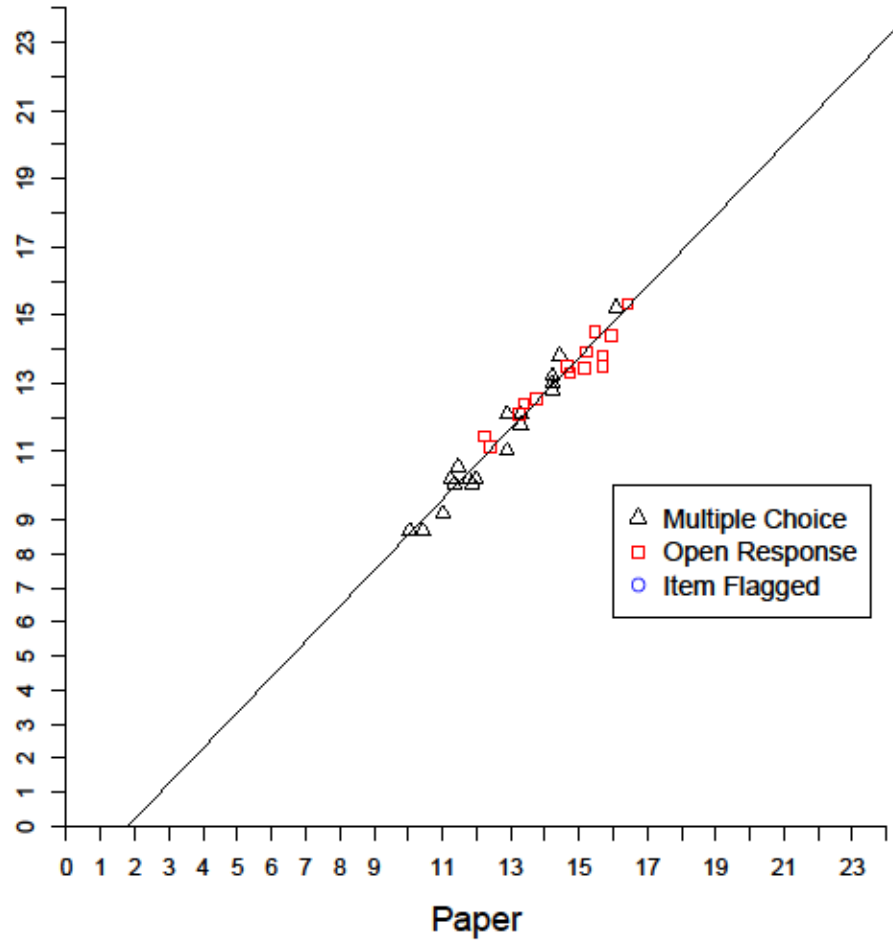
Online

Next-MCAS MAT08 Online-Paper b-b Plot

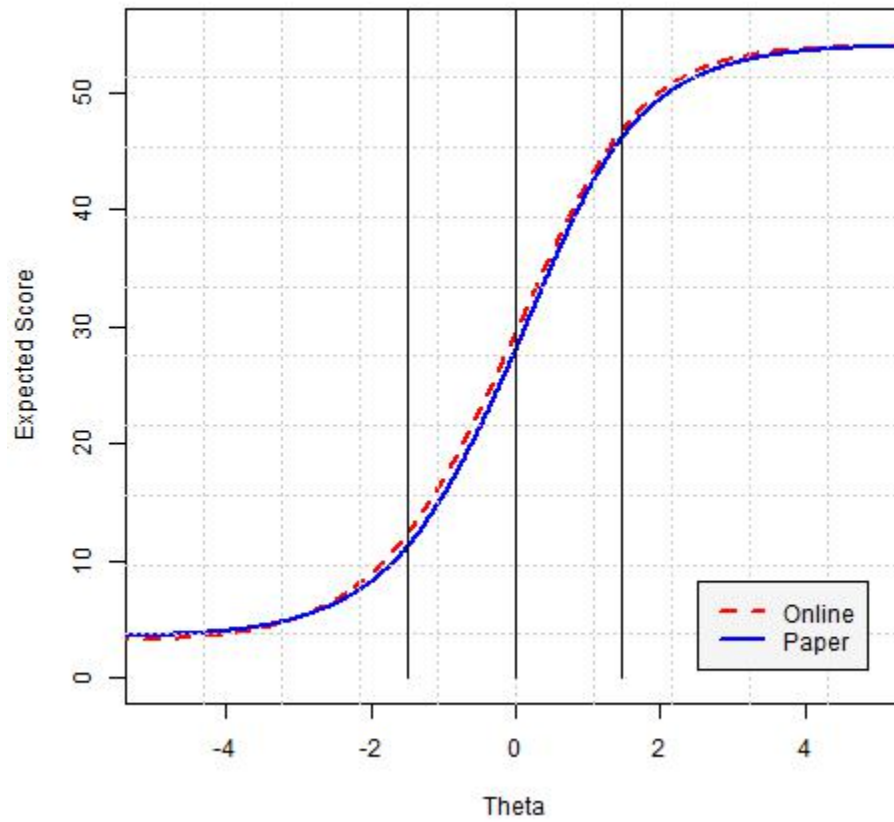


Online

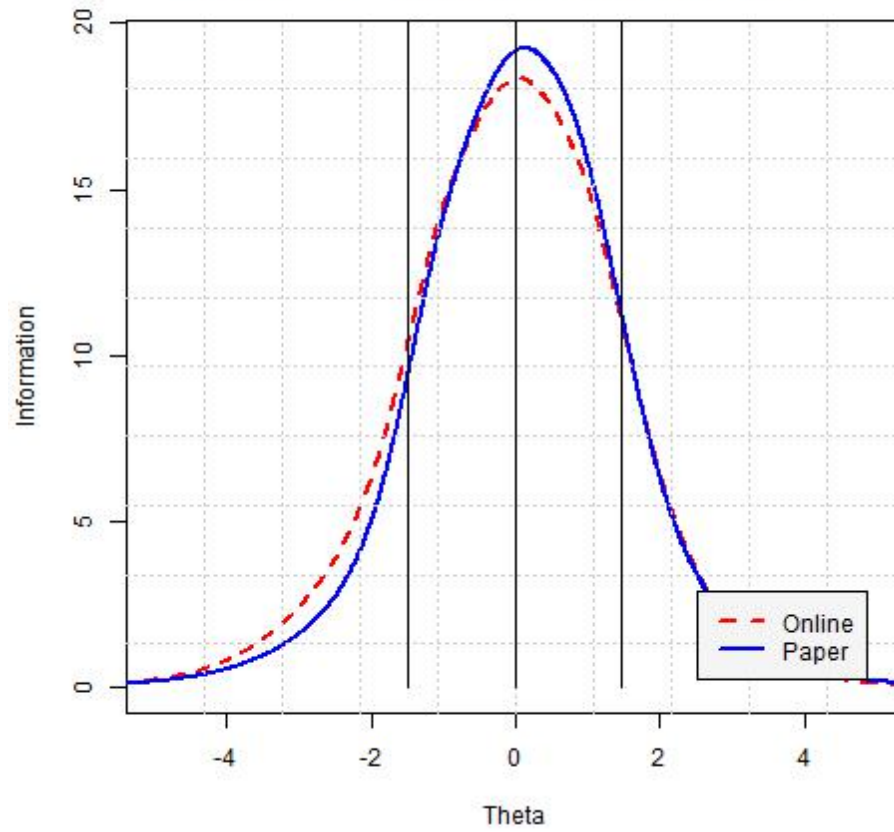
Next-MCAS MAT08 Online-Paper Delta Plot



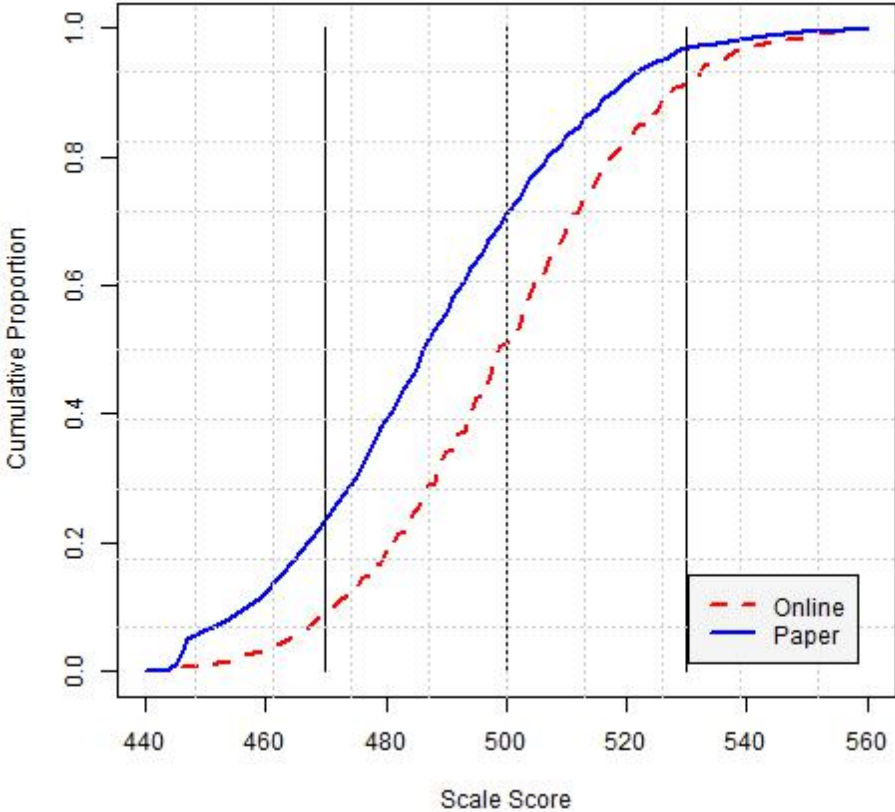
Test Characteristic Curve: Mathematics Grade 8



Test Information Function: Mathematics Grade 8



Cumulative Scale Score Distribution: Mathematics Grade 8



Section 2.2 Tabled Delta Analysis Results

Table 2.2.1 Delta Analysis
 ELA Grade 03

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00024	0.74	0.77	10.49	10.11	-0.20	1.03	FALSE
IA00025	0.44	0.45	13.60	13.50	0.13	0.68	FALSE
IA00026	0.52	0.52	12.85	12.80	0.14	0.71	FALSE
IA00027	0.54	0.53	12.65	12.70	0.20	1.05	FALSE
IA00028B	0.37	0.43	14.29	13.67	-0.22	1.15	FALSE
IA00028C	0.34	0.40	14.61	13.98	-0.22	1.14	FALSE
IA00192	0.88	0.88	8.30	8.30	-0.01	0.05	FALSE
IA00193	0.55	0.54	12.50	12.60	0.23	1.22	FALSE
IA00194	0.47	0.48	13.30	13.20	0.12	0.62	FALSE
IA00195	0.44	0.43	13.60	13.71	0.28	1.45	FALSE
IA00196	0.48	0.52	13.20	12.80	-0.10	0.55	FALSE
IA00197	0.33	0.40	14.76	14.01	-0.29	1.53	FALSE
IA00198	0.76	0.77	10.17	10.04	-0.03	0.15	FALSE
IA00199	0.41	0.38	13.88	14.26	0.49	2.57	FALSE
IA00263	0.93	0.93	7.10	7.10	-0.06	0.30	FALSE
IA00264	0.68	0.71	11.13	10.79	-0.14	0.76	FALSE
IA00266	0.80	0.80	9.63	9.63	0.04	0.23	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00268	0.66	0.66	11.35	11.35	0.11	0.59	FALSE
IA00271	0.89	0.88	8.09	8.30	0.13	0.70	FALSE
IA00272	0.92	0.91	7.38	7.64	0.14	0.74	FALSE
IA00273	0.67	0.71	11.24	10.79	-0.22	1.16	FALSE
IA00274	0.83	0.84	9.18	9.02	-0.09	0.47	FALSE
IA00275	0.74	0.74	10.43	10.43	0.08	0.40	FALSE
IA00276	0.84	0.84	9.02	9.02	0.02	0.11	FALSE
IA00277	0.64	0.68	11.57	11.13	-0.20	1.02	FALSE
IA00278A	0.47	0.53	13.33	12.70	-0.27	1.41	FALSE
IA00278D	0.35	0.39	14.60	14.17	-0.07	0.35	FALSE

Table 2.2.2 Delta Analysis
ELA Grade 04

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00227	0.57	0.53	12.29	12.70	-0.31	1.41	FALSE
IA00228	0.78	0.68	9.91	11.13	-0.05	0.22	FALSE
IA00229	0.74	0.62	10.43	11.78	0.14	0.61	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00230	0.85	0.76	8.85	10.17	-0.13	0.59	FALSE
IA00231	0.60	0.51	11.99	12.90	0.04	0.16	FALSE
IA00232	0.77	0.64	10.04	11.57	0.21	0.94	FALSE
IA00233	0.74	0.60	10.43	11.99	0.30	1.35	FALSE
IA00234	0.48	0.41	13.20	13.91	0.06	0.29	FALSE
IA00236	0.77	0.65	10.04	11.46	0.13	0.57	FALSE
IA00237	0.93	0.83	7.10	9.18	0.19	0.88	FALSE
IA00238	0.82	0.71	9.34	10.79	0.04	0.19	FALSE
IA00239	0.90	0.81	7.87	9.49	-0.05	0.24	FALSE
IA00240	0.70	0.56	10.90	12.40	0.32	1.44	FALSE
IA00241	0.74	0.62	10.43	11.78	0.14	0.61	FALSE
IA00242	0.61	0.50	11.88	13.00	0.18	0.80	FALSE
IA00243	0.68	0.61	11.13	11.88	-0.22	1.00	FALSE
IA00244	0.82	0.73	9.34	10.55	-0.14	0.64	FALSE
IA00245	0.83	0.73	9.18	10.55	-0.05	0.20	FALSE
IA00246	0.81	0.69	9.49	11.02	0.13	0.58	FALSE
IA00247A	0.57	0.48	12.29	13.20	0.08	0.35	FALSE
IA00247D	0.43	0.34	13.71	14.62	0.30	1.37	FALSE
IA01183	0.74	0.70	10.43	10.96	-0.50	2.26	FALSE
IA01184	0.54	0.48	12.60	13.25	-0.07	0.33	FALSE
IA01185	0.78	0.67	9.98	11.30	0.04	0.18	FALSE
IA01188B	0.56	0.54	12.43	12.63	-0.45	2.03	FALSE
IA01188C	0.57	0.53	12.33	12.73	-0.31	1.39	FALSE

Table 2.2.3 Delta Analysis
ELA Grade 05

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00029	0.80	0.81	9.63	9.56	-0.24	1.17	FALSE
IA00030	0.57	0.60	12.29	12.04	-0.11	0.52	FALSE
IA00031B	0.55	0.61	12.50	11.92	-0.33	1.61	FALSE
IA00031C	0.57	0.63	12.26	11.67	-0.36	1.75	FALSE
IA00084	0.89	0.89	8.09	8.09	-0.35	1.67	FALSE
IA00085	0.84	0.83	9.02	9.18	-0.13	0.62	FALSE
IA00086	0.56	0.56	12.40	12.40	0.10	0.46	FALSE
IA00087	0.82	0.79	9.34	9.77	0.11	0.54	FALSE
IA00088	0.87	0.84	8.49	9.02	0.09	0.45	FALSE
IA00089	0.62	0.62	11.78	11.78	0.03	0.16	FALSE
IA00090A	0.49	0.52	13.10	12.77	-0.08	0.41	FALSE
IA00090D	0.37	0.39	14.35	14.17	0.16	0.76	FALSE
IA00135	0.84	0.77	9.02	10.04	0.52	2.52	FALSE
IA00136	0.83	0.78	9.18	9.91	0.32	1.53	FALSE
IA00137	0.88	0.85	8.30	8.85	0.09	0.45	FALSE
IA00138	0.88	0.86	8.30	8.68	-0.04	0.19	FALSE
IA00139	0.77	0.76	10.04	10.17	-0.05	0.23	FALSE
IA00140	0.81	0.81	9.49	9.49	-0.20	0.98	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00141	0.67	0.67	11.24	11.24	-0.02	0.11	FALSE
IA00142	0.68	0.67	11.13	11.24	0.05	0.24	FALSE
IA00143	0.82	0.78	9.34	9.91	0.21	1.04	FALSE
IA00144	0.89	0.86	8.09	8.68	0.10	0.46	FALSE
IA00145	0.74	0.72	10.43	10.67	0.08	0.37	FALSE
IA00146	0.80	0.78	9.63	9.91	0.02	0.11	FALSE
IA00147A	0.60	0.60	11.95	11.99	0.08	0.37	FALSE
IA00147D	0.46	0.44	13.45	13.58	0.30	1.45	FALSE
IA00700	0.77	0.77	10.04	10.04	-0.15	0.71	FALSE
IA00701	0.54	0.58	12.60	12.19	-0.19	0.92	FALSE

Table 2.2.4 Delta Analysis
ELA Grade 06

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00017	0.65	0.66	11.46	11.35	-0.06	0.25	FALSE
IA00018	0.58	0.59	12.24	12.14	0.01	0.03	FALSE
IA00019B	0.51	0.60	12.93	12.02	-0.54	2.33	FALSE
IA00019C	0.40	0.46	14.01	13.38	-0.25	1.09	FALSE
IA00020	0.47	0.49	13.30	13.10	0.02	0.07	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00021	0.71	0.70	10.84	10.90	0.02	0.07	FALSE
IA00299	0.93	0.93	7.10	7.10	-0.32	1.37	FALSE
IA00300	0.83	0.81	9.18	9.49	0.07	0.31	FALSE
IA00301	0.78	0.75	9.91	10.30	0.19	0.82	FALSE
IA00302	0.78	0.76	9.91	10.17	0.10	0.42	FALSE
IA00303	0.57	0.52	12.29	12.80	0.46	1.99	FALSE
IA00304	0.76	0.73	10.17	10.55	0.20	0.86	FALSE
IA00305	0.76	0.75	10.17	10.30	0.02	0.07	FALSE
IA00306	0.82	0.80	9.34	9.63	0.08	0.33	FALSE
IA00307A	0.55	0.62	12.50	11.81	-0.41	1.75	FALSE
IA00307D	0.35	0.39	14.56	14.16	-0.04	0.16	FALSE
IA00321	0.59	0.63	12.09	11.67	-0.24	1.03	FALSE
IA00340	0.38	0.40	14.22	14.01	0.08	0.35	FALSE
IA00341	0.79	0.78	9.77	9.91	-0.01	0.03	FALSE
IA00342	0.56	0.53	12.40	12.70	0.32	1.38	FALSE
IA00343	0.71	0.70	10.79	10.90	0.06	0.24	FALSE
IA00344	0.69	0.70	11.02	10.90	-0.10	0.42	FALSE
IA00345	0.79	0.75	9.77	10.30	0.28	1.22	FALSE
IA00346	0.60	0.57	11.99	12.29	0.29	1.26	FALSE
IA00347	0.66	0.68	11.35	11.13	-0.15	0.65	FALSE
IA00348	0.54	0.53	12.60	12.70	0.19	0.80	FALSE
IA00349A	0.53	0.59	12.70	12.09	-0.34	1.44	FALSE
IA00349D	0.33	0.35	14.80	14.52	0.07	0.31	FALSE

Table 2.2.5 Delta Analysis
ELA Grade 07

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00072	0.85	0.84	8.85	9.02	-0.09	0.33	FALSE
IA00073	0.87	0.86	8.49	8.68	-0.12	0.40	FALSE
IA00074	0.78	0.73	9.91	10.55	0.35	1.23	FALSE
IA00075	0.59	0.57	12.09	12.29	0.22	0.78	FALSE
IA00076	0.76	0.78	10.17	9.91	-0.3	1.04	FALSE
IA00077	0.71	0.67	10.79	11.24	0.29	1.02	FALSE
IA00078	0.69	0.68	11.02	11.13	0.06	0.20	FALSE
IA00079	0.71	0.72	10.79	10.67	-0.14	0.47	FALSE
IA00080A	0.60	0.65	12.02	11.42	-0.38	1.34	FALSE
IA00080D	0.40	0.43	14.03	13.71	0.00	0.00	FALSE
IA00083	0.76	0.70	10.17	10.90	0.44	1.55	FALSE
IA00116	0.43	0.47	13.71	13.30	-0.09	0.30	FALSE
IA00117	0.75	0.77	10.30	10.04	-0.28	0.99	FALSE
IA00118	0.70	0.68	10.90	11.13	0.13	0.47	FALSE
IA00119	0.69	0.69	11.02	11.02	-0.03	0.09	FALSE
IA00120	0.69	0.65	11.02	11.46	0.31	1.06	FALSE
IA00121	0.53	0.56	12.70	12.40	-0.1	0.35	FALSE
IA00122	0.82	0.77	9.34	10.04	0.35	1.23	FALSE
IA00123	0.69	0.61	11.02	11.88	0.62	2.17	FALSE
IA00124	0.56	0.54	12.40	12.60	0.25	0.87	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00125A	0.60	0.67	12.02	11.20	-0.55	1.91	FALSE
IA00125D	0.39	0.43	14.16	13.66	-0.11	0.40	FALSE
IA01227	0.80	0.80	9.63	9.70	-0.10	0.34	FALSE
IA01228	0.49	0.50	13.10	13.05	0.12	0.43	FALSE
IA01229	0.69	0.68	11.02	11.13	0.06	0.20	FALSE
IA01230	0.70	0.71	10.90	10.79	-0.12	0.43	FALSE
IA01231B	0.65	0.71	11.46	10.79	-0.49	1.71	FALSE
IA01231C	0.60	0.65	11.96	11.46	-0.32	1.11	FALSE

Table 2.2.6 Delta Analysis
ELA Grade 08

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00032	0.80	0.69	9.63	11.02	0.24	1.14	FALSE
IA00033	0.85	0.78	8.85	9.91	-0.10	0.44	FALSE
IA00034	0.86	0.79	8.68	9.77	-0.09	0.40	FALSE
IA00035	0.89	0.81	8.09	9.49	0.07	0.34	FALSE
IA00036	0.81	0.74	9.49	10.43	-0.11	0.52	FALSE
IA00037	0.72	0.61	10.67	11.88	0.24	1.10	FALSE
IA00038	0.90	0.83	7.87	9.18	-0.02	0.08	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00039	0.67	0.61	11.24	11.88	-0.13	0.62	FALSE
IA00040	0.92	0.80	7.38	9.63	0.65	3.01	TRUE
IA00041A	0.62	0.57	11.81	12.33	-0.16	0.76	FALSE
IA00041D	0.40	0.35	14.05	14.52	0.06	0.27	FALSE
IA00200	0.81	0.72	9.49	10.67	0.07	0.34	FALSE
IA00201	0.76	0.72	10.17	10.67	-0.37	1.73	FALSE
IA00202	0.58	0.53	12.19	12.70	-0.13	0.59	FALSE
IA00203	0.80	0.72	9.63	10.67	-0.02	0.10	FALSE
IA00204	0.54	0.48	12.60	13.20	-0.01	0.03	FALSE
IA00205	0.73	0.62	10.55	11.78	0.23	1.09	FALSE
IA00206	0.81	0.73	9.49	10.55	-0.02	0.09	FALSE
IA00207	0.85	0.82	8.85	9.34	-0.53	2.48	FALSE
IA00208A	0.70	0.65	10.86	11.49	-0.19	0.87	FALSE
IA00208D	0.43	0.39	13.71	14.12	-0.02	0.10	FALSE
IA00235	0.82	0.73	9.34	10.55	0.08	0.36	FALSE
IA01173	0.46	0.41	13.40	13.96	0.06	0.26	FALSE
IA01174	0.65	0.54	11.51	12.60	0.24	1.10	FALSE
IA01175	0.48	0.43	13.25	13.76	0.00	0.02	FALSE
IA01176	0.50	0.44	13.00	13.65	0.08	0.38	FALSE
IA01202B	0.64	0.59	11.57	12.12	-0.16	0.74	FALSE
IA01202C	0.52	0.46	12.82	13.45	0.04	0.19	FALSE

Table 2.2.7 Delta Analysis
Math Grade 03

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00004	0.29	0.32	15.27	14.93	-0.09	0.49	FALSE
IA00702	0.81	0.81	9.49	9.49	0.13	0.72	FALSE
IA00725	0.60	0.63	11.99	11.67	-0.08	0.45	FALSE
IA00734	0.76	0.79	10.17	9.77	-0.15	0.83	FALSE
IA00736	0.68	0.72	11.13	10.67	-0.19	1.04	FALSE
IA00737	0.54	0.59	12.60	12.09	-0.22	1.19	FALSE
IA00739	0.56	0.60	12.40	11.95	-0.17	0.94	FALSE
IA00747	0.78	0.81	9.91	9.49	-0.17	0.92	FALSE
IA00748	0.46	0.47	13.40	13.30	0.08	0.42	FALSE
IA00752	0.55	0.51	12.50	12.90	0.43	2.36	FALSE
IA00769	0.85	0.89	8.85	8.09	-0.41	2.26	FALSE
IA00770	0.71	0.70	10.79	10.90	0.22	1.20	FALSE
IA00772	0.77	0.76	10.04	10.17	0.23	1.24	FALSE
IA00801	0.71	0.73	10.79	10.55	-0.03	0.18	FALSE
IA00811	0.54	0.54	12.60	12.60	0.14	0.79	FALSE
IA00813	0.89	0.88	8.09	8.30	0.27	1.49	FALSE
IA00821	0.89	0.91	8.09	7.64	-0.20	1.10	FALSE
IA00834	0.79	0.79	9.77	9.77	0.13	0.72	FALSE
IA00850	0.74	0.74	10.43	10.43	0.13	0.74	FALSE
IA00855	0.67	0.66	11.24	11.35	0.22	1.19	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00862	0.64	0.67	11.57	11.24	-0.09	0.50	FALSE
IA00887	0.36	0.39	14.43	14.12	-0.07	0.40	FALSE
IA00889	0.56	0.57	12.40	12.29	0.07	0.39	FALSE
IA00921	0.33	0.37	14.76	14.33	-0.15	0.84	FALSE
IA00923	0.49	0.49	13.10	13.10	0.15	0.80	FALSE
IA00924	0.51	0.55	12.90	12.50	-0.14	0.77	FALSE
IA00926	0.39	0.45	14.17	13.55	-0.29	1.57	FALSE
IA00931	0.40	0.40	14.07	14.07	0.15	0.83	FALSE
IA01168	0.72	0.72	10.67	10.67	0.14	0.75	FALSE
IA01179	0.52	0.52	12.80	12.80	0.15	0.80	FALSE
IA01195	0.65	0.68	11.46	11.13	-0.09	0.52	FALSE
IA01198	0.45	0.48	13.50	13.20	-0.07	0.36	FALSE
IA01205	0.31	0.32	14.98	14.87	0.07	0.41	FALSE
IA01221	0.51	0.54	12.93	12.56	-0.12	0.63	FALSE
IA01223	0.81	0.82	9.49	9.34	0.02	0.13	FALSE

Table 2.2.8 Delta Analysis
Math Grade 04

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00001	0.78	0.71	9.91	10.84	-0.19	0.80	FALSE
IA00705	0.42	0.32	13.81	14.87	0.02	0.10	FALSE
IA00711	0.18	0.14	16.61	17.32	-0.15	0.63	FALSE
IA00719	0.83	0.71	9.18	10.79	0.28	1.19	FALSE
IA00727	0.83	0.77	9.18	10.04	-0.26	1.12	FALSE
IA00728	0.81	0.74	9.49	10.43	-0.20	0.84	FALSE
IA00729	0.90	0.83	7.87	9.18	0.02	0.11	FALSE
IA00733	0.41	0.31	13.91	14.98	0.03	0.15	FALSE
IA00735	0.74	0.64	10.43	11.57	-0.02	0.09	FALSE
IA00738	0.59	0.52	12.09	12.80	-0.28	1.21	FALSE
IA00741	0.31	0.31	14.95	15.02	-0.65	2.82	FALSE
IA00742	0.51	0.40	12.90	14.01	0.03	0.14	FALSE
IA00744	0.77	0.68	10.04	11.13	-0.07	0.31	FALSE
IA00750	0.61	0.44	11.88	13.60	0.44	1.90	FALSE
IA00773	0.85	0.76	8.85	10.17	0.06	0.27	FALSE
IA00779	0.85	0.77	8.85	10.04	-0.03	0.14	FALSE
IA00780	0.48	0.37	13.20	14.33	0.05	0.22	FALSE
IA00783	0.78	0.67	9.91	11.24	0.10	0.43	FALSE
IA00795	0.62	0.57	11.83	12.27	-0.49	2.09	FALSE
IA00814	0.88	0.77	8.30	10.04	0.35	1.51	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00828	0.79	0.68	9.77	11.13	0.11	0.49	FALSE
IA00837	0.47	0.33	13.30	14.76	0.29	1.27	FALSE
IA00839	0.60	0.47	11.99	13.30	0.15	0.65	FALSE
IA00868	0.89	0.83	8.09	9.18	-0.13	0.55	FALSE
IA00870	0.45	0.33	13.50	14.76	0.15	0.67	FALSE
IA00906	0.72	0.64	10.67	11.57	-0.19	0.81	FALSE
IA00958	0.50	0.39	13.00	14.12	0.04	0.17	FALSE
IA00959	0.64	0.51	11.57	12.90	0.15	0.65	FALSE
IA00968	0.53	0.41	12.75	13.91	0.06	0.27	FALSE
IA01167	0.47	0.35	13.30	14.54	0.14	0.59	FALSE
IA01171	0.68	0.55	11.13	12.50	0.16	0.71	FALSE
IA01177	0.79	0.67	9.77	11.24	0.19	0.84	FALSE
IA01214	0.41	0.36	13.91	14.43	-0.36	1.56	FALSE
IA01215	0.46	0.35	13.45	14.60	0.07	0.31	FALSE
IA01222	0.79	0.73	9.77	10.55	-0.30	1.31	FALSE
IA01232	0.31	0.21	14.98	16.30	0.24	1.03	FALSE
IA01236	0.51	0.38	12.95	14.22	0.15	0.64	FALSE

Table 2.2.9 Delta Analysis
Math Grade 05

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00002	0.78	0.79	9.98	9.84	-0.24	0.73	FALSE
IA00003	0.64	0.64	11.62	11.57	-0.13	0.38	FALSE
IA00022	0.54	0.52	12.60	12.80	0.09	0.28	FALSE
IA00724	0.93	0.91	7.10	7.64	0.14	0.44	FALSE
IA00730	0.48	0.49	13.20	13.10	-0.10	0.31	FALSE
IA00740	0.25	0.31	15.66	15.02	-0.40	1.22	FALSE
IA00746	0.64	0.68	11.57	11.13	-0.41	1.22	FALSE
IA00751	0.80	0.65	9.63	11.46	1.17	3.51	TRUE
IA00753	0.41	0.39	13.91	14.12	0.14	0.43	FALSE
IA00771	0.78	0.77	9.91	10.04	-0.05	0.15	FALSE
IA00775	0.37	0.34	14.33	14.65	0.24	0.73	FALSE
IA00776	0.67	0.63	11.24	11.67	0.21	0.64	FALSE
IA00802	0.72	0.73	10.67	10.55	-0.21	0.63	FALSE
IA00809	0.89	0.87	8.09	8.49	0.08	0.24	FALSE
IA00815	0.41	0.41	13.91	13.91	-0.01	0.02	FALSE
IA00829	0.60	0.61	11.99	11.88	-0.15	0.45	FALSE
IA00872	0.64	0.63	11.57	11.67	-0.01	0.04	FALSE
IA00885	0.75	0.74	10.30	10.43	-0.04	0.13	FALSE
IA00892	0.60	0.58	12.04	12.22	0.06	0.17	FALSE
IA00901	0.55	0.55	12.50	12.50	-0.06	0.17	FALSE
IA00935	0.64	0.65	11.57	11.46	-0.17	0.50	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00941	0.93	0.93	7.10	7.10	-0.25	0.74	FALSE
IA01026	0.33	0.29	14.76	15.21	0.35	1.06	FALSE
IA01027	0.67	0.58	11.24	12.19	0.59	1.78	FALSE
IA01032	0.40	0.39	14.07	14.14	0.06	0.17	FALSE
IA01166	0.44	0.42	13.60	13.81	0.13	0.39	FALSE
IA01169	0.44	0.58	13.57	12.16	-1.04	3.14	TRUE
IA01170	0.69	0.67	11.02	11.24	0.05	0.16	FALSE
IA01189	0.79	0.79	9.77	9.77	-0.15	0.46	FALSE
IA01197	0.59	0.57	12.09	12.29	0.08	0.23	FALSE
IA01208	0.53	0.51	12.70	12.90	0.10	0.29	FALSE
IA01209	0.38	0.37	14.22	14.33	0.08	0.25	FALSE
IA01213	0.52	0.51	12.80	12.90	0.03	0.08	FALSE
IA01218	0.41	0.42	13.91	13.81	-0.08	0.24	FALSE
IA01226	0.49	0.50	13.15	13.05	-0.11	0.32	FALSE

Table 2.2.10 Delta Analysis
Math Grade 06

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00016	0.55	0.56	12.50	12.45	-0.05	0.33	FALSE
IA00023	0.45	0.42	13.48	13.81	0.28	1.81	FALSE
IA00758	0.71	0.71	10.79	10.79	-0.10	0.63	FALSE
IA00761	0.25	0.28	15.70	15.33	-0.13	0.82	FALSE
IA00762	0.63	0.59	11.67	12.09	0.25	1.65	FALSE
IA00766	0.70	0.70	10.90	10.90	-0.09	0.59	FALSE
IA00784	0.95	0.94	6.42	6.78	-0.04	0.29	FALSE
IA00790	0.63	0.65	11.67	11.46	-0.21	1.37	FALSE
IA00804	0.72	0.69	10.67	11.02	0.15	1.00	FALSE
IA00810	0.30	0.32	15.13	14.87	-0.07	0.47	FALSE
IA00817	0.50	0.50	13.00	13.00	0.01	0.08	FALSE
IA00818	0.41	0.39	13.91	14.12	0.21	1.36	FALSE
IA00819	0.51	0.48	12.90	13.20	0.23	1.49	FALSE
IA00820	0.72	0.70	10.67	10.90	0.07	0.45	FALSE
IA00833	0.76	0.74	10.17	10.43	0.06	0.38	FALSE
IA00848	0.81	0.80	9.49	9.63	-0.05	0.35	FALSE
IA00894	0.56	0.55	12.40	12.50	0.06	0.37	FALSE
IA00970	0.26	0.29	15.57	15.21	-0.13	0.83	FALSE
IA00971	0.68	0.68	11.13	11.10	-0.10	0.66	FALSE
IA00978	0.24	0.27	15.83	15.45	-0.12	0.82	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00992	0.40	0.41	14.01	13.91	-0.01	0.10	FALSE
IA01178	0.40	0.38	14.01	14.22	0.21	1.40	FALSE
IA01180	0.19	0.20	16.56	16.32	0.01	0.05	FALSE
IA01191	0.77	0.74	10.04	10.43	0.15	0.97	FALSE
IA01192	0.24	0.29	15.78	15.21	-0.27	1.77	FALSE
IA01204	0.74	0.73	10.43	10.55	-0.02	0.16	FALSE
IA01219	0.56	0.57	12.40	12.29	-0.09	0.60	FALSE
IA01233	0.38	0.37	14.27	14.33	0.11	0.74	FALSE
IA01234	0.74	0.76	10.43	10.17	-0.30	1.95	FALSE

Table 2.2.11 Delta Analysis
Math Grade 07

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00005	0.25	0.25	15.73	15.76	0.22	1.36	FALSE
IA00011	0.34	0.39	14.65	14.17	-0.23	1.44	FALSE
IA00756	0.21	0.23	16.18	15.96	0.06	0.39	FALSE
IA00763	0.28	0.34	15.33	14.65	-0.34	2.07	FALSE
IA00768	0.87	0.85	8.49	8.85	-0.04	0.26	FALSE
IA00796	0.51	0.53	12.90	12.70	-0.15	0.92	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00797	0.75	0.71	10.30	10.79	0.18	1.09	FALSE
IA00798	0.51	0.53	12.95	12.67	-0.20	1.24	FALSE
IA00807	0.61	0.60	11.88	11.99	0.01	0.03	FALSE
IA00808	0.52	0.51	12.80	12.90	0.07	0.41	FALSE
IA00842	0.26	0.28	15.57	15.39	0.05	0.32	FALSE
IA00844	0.34	0.39	14.65	14.12	-0.27	1.68	FALSE
IA00847	0.57	0.55	12.29	12.50	0.11	0.66	FALSE
IA00907	0.72	0.70	10.67	10.90	0.02	0.10	FALSE
IA00909	0.89	0.86	8.09	8.68	0.10	0.60	FALSE
IA00917	0.40	0.40	14.01	14.01	0.08	0.48	FALSE
IA00918	0.36	0.33	14.43	14.76	0.35	2.15	FALSE
IA00920	0.63	0.62	11.67	11.78	-0.01	0.05	FALSE
IA00945	0.75	0.73	10.30	10.55	0.00	0.00	FALSE
IA00953	0.48	0.51	13.20	12.90	-0.20	1.25	FALSE
IA00955	0.55	0.52	12.50	12.80	0.20	1.20	FALSE
IA01003	0.67	0.65	11.24	11.46	0.05	0.28	FALSE
IA01015	0.60	0.61	11.99	11.88	-0.14	0.87	FALSE
IA01181	0.37	0.39	14.38	14.12	-0.09	0.57	FALSE
IA01190	0.72	0.71	10.67	10.79	-0.07	0.43	FALSE
IA01199	0.77	0.77	10.04	10.04	-0.20	1.24	FALSE
IA01201	0.19	0.20	16.55	16.44	0.17	1.07	FALSE
IA01212	0.85	0.82	8.85	9.34	0.08	0.46	FALSE

Continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA01220	0.68	0.65	11.13	11.46	0.12	0.74	FALSE
IA01235	0.70	0.67	10.90	11.24	0.11	0.68	FALSE

Table 2.2.12 Delta Analysis
Math Grade 08

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00008	0.65	0.58	11.46	12.24	-0.42	1.55	FALSE
IA00013	0.55	0.43	12.55	13.76	-0.08	0.30	FALSE
IA00015	0.59	0.48	12.09	13.25	-0.13	0.47	FALSE
IA00759	0.69	0.51	11.02	12.90	0.36	1.35	FALSE
IA00760	0.86	0.77	8.68	10.04	-0.08	0.28	FALSE
IA00774	0.76	0.62	10.17	11.78	0.14	0.51	FALSE
IA00792	0.73	0.65	10.55	11.46	-0.35	1.31	FALSE
IA00822	0.47	0.33	13.30	14.73	0.10	0.38	FALSE
IA00823	0.77	0.61	10.04	11.88	0.30	1.13	FALSE
IA00858	0.83	0.69	9.18	11.02	0.28	1.03	FALSE
IA00859	0.52	0.38	12.80	14.22	0.08	0.30	FALSE
IA00860	0.45	0.25	13.50	15.70	0.66	2.45	FALSE
IA00866	0.42	0.25	13.81	15.70	0.45	1.67	FALSE

continued

Item ID	Online P	Paper P	Online Delta	Paper Delta	Distance	Std. Dist	Flag
IA00877	0.86	0.74	8.68	10.43	0.20	0.74	FALSE
IA00903	0.77	0.66	10.04	11.35	-0.08	0.30	FALSE
IA00904	0.48	0.38	13.20	14.22	-0.20	0.73	FALSE
IA00905	0.50	0.38	13.00	14.22	-0.06	0.21	FALSE
IA00914	0.59	0.51	12.09	12.90	-0.38	1.42	FALSE
IA00915	0.41	0.29	13.91	15.21	0.03	0.10	FALSE
IA00980	0.45	0.34	13.50	14.65	-0.10	0.36	FALSE
IA00986	0.42	0.36	13.81	14.43	-0.46	1.73	FALSE
IA00988	0.59	0.47	12.09	13.30	-0.09	0.34	FALSE
IA00991	0.36	0.23	14.41	15.96	0.22	0.81	FALSE
IA01034	0.56	0.46	12.40	13.40	-0.23	0.86	FALSE
IA01038	0.29	0.22	15.21	16.09	-0.25	0.91	FALSE
IA01044	0.68	0.56	11.13	12.40	-0.08	0.29	FALSE
IA01193	0.76	0.60	10.17	11.99	0.29	1.07	FALSE
IA01194	0.76	0.67	10.17	11.24	-0.25	0.93	FALSE
IA01200	0.46	0.30	13.45	15.16	0.30	1.13	FALSE
IA01207	0.62	0.47	11.78	13.30	0.13	0.47	FALSE
IA01211	0.35	0.27	14.51	15.45	-0.21	0.80	FALSE
IA01216	0.28	0.20	15.33	16.41	-0.09	0.34	FALSE

Section 2.3 Tabled B/B Analysis Results

Table 2.3.1 b/b Analysis
 ELA Grade 03

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00192	-1.62143	-1.49877	0.09119	0.76933	FALSE
IA00193	0.09482	-0.08169	-0.05188	0.43764	FALSE
IA00198	-1.03019	-1.06338	0.00345	0.02907	FALSE
IA00195	1.00385	1.17267	0.23940	2.01971	FALSE
IA00196	0.63791	0.43679	-0.04610	0.38894	FALSE
IA00197	1.39596	1.04361	-0.12320	1.03939	FALSE
IA00194	1.09538	0.91618	-0.01017	0.08577	FALSE
IA00263	-2.14271	-2.07486	0.02851	0.24050	FALSE
IA00264	-0.58811	-0.79668	-0.10504	0.88616	FALSE
IA00266	-1.19180	-1.14179	0.05701	0.48097	FALSE
IA00268	-0.74547	-0.81995	-0.01421	0.11989	FALSE
IA00272	-2.01832	-2.00598	-0.00651	0.05491	FALSE
IA00271	-1.33579	-1.31411	0.03009	0.25381	FALSE
IA00274	-1.43602	-1.40646	0.03145	0.26535	FALSE
IA00273	-0.63521	-0.83063	-0.09752	0.82268	FALSE
IA00275	-1.56584	-1.62716	-0.04043	0.34107	FALSE
IA00276	-1.22446	-1.14032	0.08045	0.67873	FALSE
IA00277	0.05475	-0.06809	-0.01452	0.12250	FALSE
IA00028B	0.77051	0.40930	-0.15696	1.32415	FALSE
IA00028C	0.93413	0.54693	-0.16875	1.42365	FALSE

continued

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00278A	0.08368	-0.33327	-0.22754	1.91966	FALSE
IA00278D	1.04593	0.87722	-0.00468	0.03949	FALSE
IA00026	-0.07570	-0.09583	0.05462	0.46079	FALSE
IA00025	0.29249	0.22126	0.03346	0.28227	FALSE
IA00024	-0.97595	-1.05350	-0.02651	0.22363	FALSE
IA00027	-0.22415	-0.18966	0.08794	0.74187	FALSE
IA00199	0.71680	1.06346	0.35645	3.00714	TRUE

Table 2.3.2 b/b Analysis
ELA Grade 04

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00228	-1.26835	-0.67449	0.01569	0.09909	FALSE
IA00227	0.00391	0.45393	-0.18644	1.17784	FALSE
IA00229	-1.02315	-0.31041	0.07407	0.46794	FALSE
IA00230	-1.27483	-0.64034	0.04321	0.27295	FALSE
IA00231	-0.57574	0.32197	0.15939	1.00695	FALSE
IA00232	-0.82228	-0.09683	0.06567	0.41491	FALSE
IA00233	-0.88614	-0.05625	0.14037	0.88681	FALSE
IA00243	-0.67604	-0.19264	-0.10729	0.67784	FALSE

continued

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00236	-0.66729	-0.15252	-0.08720	0.55088	FALSE
IA00238	-0.91567	-0.46262	-0.10736	0.67828	FALSE
IA00239	-1.63139	-0.80007	0.20377	1.28736	FALSE
IA00240	-0.57200	0.10087	0.00979	0.06185	FALSE
IA00241	-0.77095	-0.18246	-0.02956	0.18677	FALSE
IA00242	-0.36644	0.34144	0.01581	0.09987	FALSE
IA00244	-1.42479	-0.67813	0.13025	0.82286	FALSE
IA00245	-0.94106	-0.34491	-0.01022	0.06458	FALSE
IA00246	-0.99277	-0.38406	0.00245	0.01548	FALSE
IA00237	-1.61053	-1.02288	0.04024	0.25420	FALSE
IA01188B	-0.30802	-0.20169	-0.38849	2.45436	FALSE
IA01188C	-0.34043	-0.13557	-0.32036	2.02390	FALSE
IA00247A	-0.43259	0.16625	-0.05105	0.32249	FALSE
IA00247D	0.49990	1.85249	0.37127	2.34555	FALSE
IA01183	-1.93771	-1.27262	0.11907	0.75226	FALSE
IA01184	-0.32202	0.14982	-0.14464	0.91375	FALSE
IA01185	-1.15624	-0.65985	-0.05843	0.36912	FALSE
IA00234	0.18201	1.08591	0.10000	0.63174	FALSE

Table 2.3.3 b/b Analysis
 ELA Grade 05

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00084	-2.75950	-2.74002	-0.11865	0.66128	FALSE
IA00085	-0.78448	-0.74011	-0.03410	0.19007	FALSE
IA00089	-0.45634	-0.33934	0.02952	0.16451	FALSE
IA00086	-0.02937	0.05435	0.01981	0.11042	FALSE
IA00087	-2.92580	-2.07235	0.47934	2.67154	FALSE
IA00088	-1.62813	-1.51231	-0.01081	0.06025	FALSE
IA00135	-1.39393	-1.00316	0.19607	1.09280	FALSE
IA00136	-1.06297	-0.73889	0.15896	0.88593	FALSE
IA00144	-1.92678	-1.84069	-0.04239	0.23625	FALSE
IA00137	-1.86489	-1.65878	0.04656	0.25950	FALSE
IA00138	-1.13272	-1.16007	-0.09774	0.54476	FALSE
IA00139	-0.95268	-0.69344	0.11574	0.64508	FALSE
IA00140	-1.28481	-1.21694	-0.03395	0.18922	FALSE
IA00141	-0.23166	-0.20134	-0.02565	0.14296	FALSE
IA00142	-0.25137	-0.22964	-0.03253	0.18131	FALSE
IA00143	-1.07678	-0.83420	0.09950	0.55458	FALSE
IA00145	-0.79094	-0.58158	0.08509	0.47424	FALSE
IA00146	-1.49518	-1.36925	0.00099	0.00549	FALSE
IA00031B	-0.19872	-0.49643	-0.26195	1.45997	FALSE
IA00031C	-0.30011	-0.57329	-0.24761	1.38006	FALSE
IA00090A	0.09074	-0.05465	-0.14196	0.79120	FALSE

continued

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00147A	-0.50482	-0.52072	-0.06830	0.38068	FALSE
IA00090D	1.02022	1.41701	0.28175	1.57033	FALSE
IA00147D	0.29823	0.75121	0.29810	1.66144	FALSE
IA00029	-1.56076	-1.55389	-0.08739	0.48708	FALSE
IA00700	-1.21779	-1.19038	-0.06097	0.33984	FALSE
IA00030	-0.60442	-0.73601	-0.15539	0.86605	FALSE
IA00701	-0.38570	-0.85442	-0.39202	2.18489	FALSE

Table 2.3.4 b/b Analysis
ELA Grade 06

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00299	-2.04570	-1.90186	-0.00944	0.07520	FALSE
IA00300	-1.46626	-1.21267	0.10648	0.84788	FALSE
IA00306	-1.18581	-0.97758	0.09003	0.71693	FALSE
IA00301	-0.92022	-0.80748	0.03576	0.28474	FALSE
IA00303	-0.10946	0.12805	0.17675	1.40741	FALSE
IA00302	-0.65590	-0.57565	0.02782	0.22152	FALSE
IA00304	-0.79996	-0.74969	-0.00299	0.02378	FALSE
IA00321	-0.30822	-0.27038	0.01762	0.14027	FALSE
IA00305	-0.78397	-0.59150	0.10274	0.81813	FALSE
IA00340	0.98988	0.89726	0.00006	0.00051	FALSE

continued

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00341	-0.92686	-0.84894	0.00970	0.07727	FALSE
IA00342	-0.09270	0.07517	0.12645	1.00695	FALSE
IA00343	-0.47496	-0.38112	0.04878	0.38844	FALSE
IA00345	-1.30547	-1.00477	0.15092	1.20174	FALSE
IA00344	-0.23252	-0.27272	-0.03530	0.28107	FALSE
IA00347	-0.86684	-1.00498	-0.14584	1.16131	FALSE
IA00348	0.48108	0.43379	0.00267	0.02124	FALSE
IA00346	-0.19700	0.10085	0.21590	1.71921	FALSE
IA00019B	0.00117	-0.41771	-0.30013	2.38996	FALSE
IA00307A	-0.25020	-0.61005	-0.27186	2.16480	FALSE
IA00349A	-0.13494	-0.43055	-0.21756	1.73239	FALSE
IA00019C	0.48560	0.22721	-0.15258	1.21499	FALSE
IA00307D	1.01978	1.02041	0.07057	0.56196	FALSE
IA00349D	1.18926	1.18911	0.08026	0.63906	FALSE
IA00018	-0.31927	-0.32316	-0.01380	0.10986	FALSE
IA00017	-0.63374	-0.66949	-0.05630	0.44831	FALSE
IA00020	0.15305	0.06438	-0.04767	0.37960	FALSE
IA00021	-0.78836	-0.74726	-0.00904	0.07199	FALSE

Table 2.3.5 b/b Analysis
 ELA Grade 07

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00116	0.80985	0.91442	0.03076	0.16273	FALSE
IA00117	-0.97103	-1.13846	-0.18886	0.99910	FALSE
IA00118	-0.70610	-0.26148	0.25204	1.33334	FALSE
IA00119	-0.95328	-0.96668	-0.07860	0.41580	FALSE
IA00120	-0.63754	-0.23308	0.22433	1.18677	FALSE
IA00124	-0.05170	0.24378	0.15484	0.81914	FALSE
IA00121	0.06784	0.10099	-0.03081	0.16301	FALSE
IA00122	-1.13345	-0.73782	0.21096	1.11606	FALSE
IA00123	-0.48075	-0.12535	0.19153	1.01322	FALSE
IA00083	-1.23186	-0.59031	0.38520	2.03780	FALSE
IA00072	-2.42619	-2.34806	-0.03420	0.18091	FALSE
IA00073	-1.30771	-1.26592	-0.04423	0.23397	FALSE
IA00074	-1.57924	-1.13188	0.24156	1.27793	FALSE
IA00076	-0.91399	-0.99387	-0.12552	0.66402	FALSE
IA00075	0.04015	0.11267	-0.00309	0.01634	FALSE
IA00077	-1.41001	-1.06165	0.17327	0.91663	FALSE
IA00078	-0.80013	-0.56414	0.10170	0.53800	FALSE
IA00079	-0.63380	-0.58134	-0.02701	0.14290	FALSE
IA01231B	-0.58884	-0.89509	-0.28256	1.49481	FALSE
IA00125A	-0.40872	-0.92757	-0.43183	2.28450	FALSE
IA00080A	-0.38914	-0.75799	-0.32442	1.71629	FALSE

continued

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA01231C	-0.45934	-0.67120	-0.21330	1.12843	FALSE
IA00125D	0.77376	0.78534	-0.03617	0.19133	FALSE
IA00080D	0.60098	0.67224	0.00400	0.02114	FALSE
IA01227	-1.40623	-1.33476	-0.02443	0.12925	FALSE
IA01228	0.07753	0.03920	-0.08172	0.43235	FALSE
IA01229	-1.02838	-0.86848	0.04410	0.23332	FALSE
IA01230	-0.85536	-0.88323	-0.08754	0.46309	FALSE

Table 2.3.6 b/b Analysis
ELA Grade 08

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00200	-1.86797	-0.84283	0.19579	1.23821	FALSE
IA00203	-1.13379	-0.42476	0.04984	0.31522	FALSE
IA00204	-0.06133	0.57021	0.13271	0.83928	FALSE
IA00207	-2.10444	-1.28534	0.00561	0.03550	FALSE
IA00202	0.11309	0.19891	-0.26455	1.67305	FALSE
IA00205	-0.91055	-0.15857	0.11261	0.71217	FALSE
IA00201	-1.06381	-0.60645	-0.13475	0.85218	FALSE
IA00206	-1.17507	-0.63231	-0.08374	0.52961	FALSE
IA00235	-1.65687	-0.62167	0.23160	1.46470	FALSE
IA00032	-1.43086	-0.43749	0.22942	1.45089	FALSE
IA00034	-1.80158	-1.00779	0.02637	0.16680	FALSE

continued

Item ID	Online b	Paper b	Distance	Std Dist	Flag
IA00033	-1.67594	-0.89556	0.03275	0.20708	FALSE
IA00035	-1.65238	-0.95526	-0.02827	0.17879	FALSE
IA00036	-1.54971	-0.57564	0.19875	1.25694	FALSE
IA00038	-1.43353	-0.92497	-0.14445	0.91354	FALSE
IA00037	-0.70765	-0.10844	0.02188	0.13839	FALSE
IA00040	-1.56687	-0.74751	0.07728	0.48870	FALSE
IA00039	-0.72418	-0.22948	-0.06083	0.38472	FALSE
IA01202B	-0.60177	-0.36402	-0.24253	1.53377	FALSE
IA00208A	-0.92142	-0.63210	-0.24529	1.55123	FALSE
IA00041A	-0.51289	-0.27460	-0.23029	1.45642	FALSE
IA01202C	-0.08724	0.24326	-0.10267	0.64929	FALSE
IA00208D	0.41694	0.70916	-0.06514	0.41194	FALSE
IA00041D	0.61023	1.12854	0.13475	0.85216	FALSE
IA01176	0.01787	0.35253	-0.08549	0.54065	FALSE
IA01175	0.22525	0.61486	-0.01559	0.09857	FALSE
IA01174	-0.58659	-0.13864	-0.07856	0.49683	FALSE
IA01173	0.50908	1.30188	0.33278	2.10455	FALSE

Table 2.3.7 b/b Analysis
Math Grade 03

Item ID	Online b	Paper b	Std Dist	Flag
IA00821	-1.61484	-1.73824	-0.08612	FALSE
IA00748	0.33283	0.26341	-1.16244	FALSE
IA00923	0.90050	0.66484	1.21220	FALSE
IA00702	-1.23815	-1.19204	0.45381	FALSE
IA00924	0.89322	0.74640	-0.36117	FALSE
IA00725	0.02423	-0.06320	-1.17512	FALSE
IA01198	0.40119	0.25999	-0.32539	FALSE
IA00772	-0.88033	-0.78274	1.46518	FALSE
IA01168	-0.62705	-0.60353	0.22143	FALSE
IA00747	-0.55063	-0.73758	0.74787	FALSE
IA00801	-0.63008	-0.69944	-1.31545	FALSE
IA00813	-1.73517	-1.74717	-0.71345	FALSE
IA00734	-0.94322	-1.09661	0.26082	FALSE
IA00921	0.90957	0.81786	-1.34292	FALSE
IA01223	-1.13741	-1.13721	-0.33257	FALSE
IA00862	0.59888	0.53605	-0.97235	FALSE
IA00834	-0.92823	-0.95538	-0.75998	FALSE
IA00855	-0.25942	-0.32825	-1.31499	FALSE
IA01195	0.00991	0.01734	0.11144	FALSE
IA00811	0.40095	0.35460	-0.73459	FALSE
IA00736	-0.76714	-0.85536	-0.94329	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00769	-2.17654	-2.36685	1.25498	FALSE
IA00752	-0.15755	-0.00536	2.63233	FALSE
IA01205	0.72748	0.70449	-0.23048	FALSE
IA00770	-0.77559	-0.73103	0.55364	FALSE
IA00850	-0.88892	-0.88362	-0.17374	FALSE
IA00737	-0.13978	-0.29280	0.03311	FALSE
IA00887	0.54390	0.42687	-0.79328	FALSE
IA00889	-0.20669	-0.21621	-0.24875	FALSE
IA00926	0.54416	0.25914	2.18557	FALSE
IA00931	0.43756	0.44892	0.29884	FALSE
IA01179	-0.05963	-0.04493	0.22121	FALSE
IA00004	1.06527	0.88427	0.19758	FALSE
IA00739	-0.27970	-0.52367	1.68441	FALSE
IA01221	-0.00843	-0.13070	-0.54833	FALSE

Table 2.3.8 b/b Analysis
Math Grade 04

Item ID	Online b	Paper b	Std Dist	Flag
IA00828	-1.05009	-0.37971	0.31473	FALSE
IA00727	-1.04548	-0.61842	-0.39892	FALSE
IA00729	-2.11030	-1.47771	-0.91416	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00728	-1.22516	-0.80736	-0.16307	FALSE
IA01214	0.79454	1.13880	-1.09837	FALSE
IA00839	-0.00532	0.46039	-0.81098	FALSE
IA00738	0.22394	0.34342	1.53779	FALSE
IA01222	-0.67689	-0.50222	1.73869	FALSE
IA00868	-1.57841	-1.22287	0.72615	FALSE
IA00773	-0.75783	-0.11877	0.25033	FALSE
IA00733	0.77055	1.19918	-0.53697	FALSE
IA00780	0.38959	0.89273	-0.12765	FALSE
IA00906	-0.15180	-0.08150	2.31899	FALSE
IA00735	-0.69951	-0.17348	-0.79395	FALSE
IA00958	0.31693	0.83323	-0.05974	FALSE
IA00744	-0.63783	-0.19492	-0.88417	FALSE
IA01171	-0.46357	0.06090	-0.61677	FALSE
IA00779	-1.39241	-0.81030	-0.81683	FALSE
IA00959	0.05586	0.50375	-0.93326	FALSE
IA00837	0.11009	0.66819	0.17549	FALSE
IA00719	-1.46201	-0.84888	-0.57390	FALSE
IA01177	-1.35524	-0.67896	0.12309	FALSE
IA00870	0.20972	0.58277	-0.89995	FALSE
IA00783	-1.77073	-0.82142	2.42185	FALSE
IA01167	0.12022	0.52245	-1.10889	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00814	-1.92962	-1.18268	0.33761	FALSE
IA00742	-0.03327	0.47348	-0.43733	FALSE
IA00705	0.33770	0.75644	-0.98519	FALSE
IA00750	-0.45849	0.27204	1.37778	FALSE
IA01232	0.66491	1.07974	-0.75634	FALSE
IA01215	0.20210	0.70584	-0.27463	FALSE
IA00001	-1.27259	-0.86902	0.01303	FALSE
IA01236	-0.01695	0.46982	-0.61703	FALSE
IA00711	1.13141	1.29441	0.37801	FALSE
IA00741	0.85551	0.89736	1.77305	FALSE
IA00795	-0.49470	-0.28062	1.20956	FALSE
IA00968	-0.06851	0.32678	-0.88808	FALSE

Table 2.3.9 b/b Analysis
Math Grade 05

Item ID	Online b	Paper b	Std Dist	Flag
IA00941	-1.90320	-2.21647	1.41963	FALSE
IA00872	-0.22675	-0.05209	0.03712	FALSE
IA00809	-2.25443	-2.12664	-0.24343	FALSE
IA01166	0.87807	1.03533	-0.08123	FALSE
IA00815	0.71906	0.67524	-0.26225	FALSE
IA01213	0.44397	0.37892	-0.13026	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00746	0.21146	0.08429	0.26033	FALSE
IA00829	-0.37105	-0.27359	-0.44940	FALSE
IA01208	0.14272	0.24240	-0.43930	FALSE
IA01218	0.55850	0.56620	-0.58889	FALSE
IA01170	-0.33647	-0.25862	-0.57352	FALSE
IA01189	-1.22787	-1.18341	-0.77761	FALSE
IA00935	-0.11460	-0.13726	-0.40227	FALSE
IA00724	-1.70287	-1.69152	-0.62922	FALSE
IA00885	-0.71092	-0.69913	-0.62442	FALSE
IA00802	-1.10672	-1.11799	-0.48179	FALSE
IA00730	0.97185	0.84265	0.27896	FALSE
IA00901	0.28573	0.32605	-0.79701	FALSE
IA01209	0.93555	0.91894	-0.43246	FALSE
IA01197	-0.45184	-0.32125	-0.23952	FALSE
IA01027	-0.67970	-0.31040	1.26998	FALSE
IA00753	0.41465	0.46379	-0.76060	FALSE
IA01026	0.66924	0.85901	0.12571	FALSE
IA00771	-1.36153	-1.22619	-0.20257	FALSE
IA00776	-0.70065	-0.51765	0.09342	FALSE
IA00751	-1.34420	-0.59925	3.64776	TRUE
IA00775	0.52098	0.65069	-0.25251	FALSE
IA01226	0.04357	0.00930	-0.32773	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00002	-1.51019	-1.50972	-0.55903	FALSE
IA00003	-0.59079	-0.59725	-0.50823	FALSE
IA00022	-0.27226	-0.14902	-0.28732	FALSE
IA00740	0.94633	0.70807	0.96762	FALSE
IA01169	0.24134	-0.34223	3.14330	TRUE
IA00892	-0.38274	-0.28759	-0.46390	FALSE
IA01032	0.42781	0.45759	-0.72935	FALSE

Table 2.3.10 b/b Analysis
Math Grade 06

Item ID	Online b	Paper b	Std Dist	Flag
IA00784	-2.38400	-2.36195	0.49589	FALSE
IA01191	-1.08678	-0.96534	-0.33956	FALSE
IA00766	-0.52774	-0.40636	0.11325	FALSE
IA00818	0.76529	0.74485	-0.55755	FALSE
IA00992	1.56843	1.46387	-0.92609	FALSE
IA00848	-0.93373	-0.87071	-0.92385	FALSE
IA00978	1.41855	1.16232	0.78557	FALSE
IA00894	-0.07679	-0.04398	-0.59497	FALSE
IA01234	-0.78892	-0.91916	1.04861	FALSE
IA00817	0.37469	0.34834	-0.94611	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00790	0.33644	-0.11751	4.06121	TRUE
IA00833	-1.16730	-1.00888	0.04356	FALSE
IA00761	1.03221	0.97306	-0.81044	FALSE
IA00758	-0.38973	-0.22982	0.69247	FALSE
IA00819	-0.03221	0.07177	0.30427	FALSE
IA01219	-0.24124	-0.30621	-0.18724	FALSE
IA00970	0.85569	0.71366	-0.14267	FALSE
IA00762	-0.47395	-0.33608	0.35687	FALSE
IA01204	-1.15261	-1.08200	-1.00938	FALSE
IA00820	-0.78962	-0.71877	-0.71198	FALSE
IA00804	-1.13045	-0.94133	0.44575	FALSE
IA00016	-0.31244	-0.28132	-0.80665	FALSE
IA01178	0.41561	0.48991	0.30765	FALSE
IA01233	0.46405	0.47064	-0.47416	FALSE
IA01192	0.98495	0.76726	0.66998	FALSE
IA01180	1.09117	1.03556	-0.71967	FALSE
IA00023	0.19013	0.31828	0.77775	FALSE
IA00810	0.74233	0.62922	-0.40141	FALSE
IA00971	-0.62694	-0.63610	-0.55112	FALSE

Table 2.3.11 b/b Analysis
Math Grade 07

Item ID	Online b	Paper b	Std Dist	Flag
IA01199	-1.09070	-1.04635	-0.51108	FALSE
IA00807	-0.23550	-0.20496	-0.77641	FALSE
IA00796	0.19525	0.11437	-0.57266	FALSE
IA00909	-1.43399	-1.40424	0.29819	FALSE
IA01003	-0.41662	-0.39611	-1.23341	FALSE
IA00920	-0.20831	-0.16816	-0.57277	FALSE
IA00955	0.69469	0.62221	-0.93713	FALSE
IA00953	0.12473	0.01900	-0.04573	FALSE
IA00945	-1.06045	-0.99617	-0.89013	FALSE
IA00768	-1.67412	-1.63906	0.60805	FALSE
IA00844	1.04799	0.93101	-1.08684	FALSE
IA00907	-0.44787	-0.34896	0.00061	FALSE
IA01190	-0.97169	-0.84054	-0.33433	FALSE
IA01015	-0.30345	-0.29981	-1.14228	FALSE
IA01235	-0.33814	-0.26164	-0.18767	FALSE
IA00808	0.40250	0.17668	1.47675	FALSE
IA01212	-1.57609	-1.31539	0.80361	FALSE
IA01220	-0.72858	-0.60433	-0.04579	FALSE
IA00847	-0.27067	-0.21148	-0.36171	FALSE
IA00797	-1.17232	-0.93766	1.04217	FALSE
IA00917	0.32169	0.30912	-0.56566	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00918	0.41844	0.53277	1.68921	FALSE
IA00011	0.69776	0.44281	1.46883	FALSE
IA01181	0.52101	0.38785	-0.24894	FALSE
IA00763	1.08800	0.69513	3.09945	TRUE
IA00756	1.27780	1.14869	-0.90664	FALSE
IA00798	-0.03399	-0.13676	0.16815	FALSE
IA01201	1.16460	1.10201	0.00400	FALSE
IA00005	1.01685	1.00985	0.67703	FALSE
IA00842	1.00188	0.89982	-0.91688	FALSE

Table 2.3.12 b/b Analysis
Math Grade 08

Item ID	Online b	Paper b	Std Dist	Flag
IA00858	-1.18290	-0.48610	-0.65759	FALSE
IA00760	-1.76719	-0.92944	0.40507	FALSE
IA01193	-0.80896	0.04442	1.27903	FALSE
IA00792	0.43628	0.82041	0.24815	FALSE
IA01194	-0.65886	-0.20919	0.36265	FALSE
IA00859	0.72322	1.21459	-1.10101	FALSE
IA00904	0.80577	1.31121	-1.21676	FALSE
IA00903	-0.88198	-0.24777	-1.09883	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00988	-0.19297	0.78546	3.06024	TRUE
IA00914	-0.23269	0.11772	1.10013	FALSE
IA00905	0.16937	0.68871	-0.98823	FALSE
IA00986	1.03596	1.39609	0.05939	FALSE
IA01207	-0.40366	0.24504	-0.59166	FALSE
IA00877	-1.66678	-0.81748	0.60175	FALSE
IA00774	-0.87797	-0.07479	0.69575	FALSE
IA00823	-0.67395	-0.16770	-0.22613	FALSE
IA00759	-0.46855	0.19123	-0.52214	FALSE
IA01038	1.29380	1.76380	-1.23183	FALSE
IA00915	0.50806	1.03008	-1.26100	FALSE
IA00860	0.17936	0.81634	-0.28501	FALSE
IA01034	-0.22745	0.15885	0.71571	FALSE
IA00980	0.18872	0.59977	0.14568	FALSE
IA01044	-0.67337	-0.24476	0.59667	FALSE
IA00866	0.26548	0.84726	-0.80665	FALSE
IA01200	0.19181	0.86135	0.06943	FALSE
IA00008	-0.74445	-0.39096	1.44572	FALSE
IA01211	0.58207	0.83446	1.53725	FALSE
IA01216	1.10315	1.75221	0.52586	FALSE
IA00991	0.50077	0.97919	-0.79929	FALSE

continued

Item ID	Online b	Paper b	Std Dist	Flag
IA00015	-0.53232	0.12673	-0.57701	FALSE
IA00013	-0.24981	0.35752	-0.91660	FALSE
IA00822	0.06528	0.55231	-0.56871	FALSE

Section 2.4 Final Item Parameter

Table 2.4.1 IRT Parameters for Dichotomous Items
 ELA Grade 03 Online

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00192	0.95298	0.02275	-1.62143	0.05055	0.10609	0.03203
IA00193	0.21518	0.01477	0.09482	0.29740	0.10528	0.04677
IA00198	0.75153	0.01861	-1.03019	0.05119	0.09242	0.02474
IA00195	0.31350	0.02091	1.00385	0.13129	0.09449	0.03068
IA00196	0.80573	0.02587	0.63791	0.02658	0.20029	0.00966
IA00197	0.45710	0.02263	1.39596	0.04505	0.07575	0.01423
IA00194	0.67163	0.03117	1.09538	0.03685	0.27991	0.01082
IA00263	0.84328	0.02523	-2.14271	0.09758	0.18794	0.05999
IA00264	0.87111	0.01916	-0.58811	0.03036	0.07690	0.01491
IA00266	0.93977	0.01827	-1.19180	0.03014	0.04725	0.01684
IA00268	0.56337	0.01018	-0.74547	0.01842	0.05000	0.00000
IA00272	0.89284	0.02229	-2.01832	0.06353	0.10652	0.04127
IA00271	1.52407	0.03647	-1.33579	0.02711	0.17837	0.02023
IA00274	0.87620	0.01724	-1.43602	0.03464	0.04614	0.01904
IA00273	0.78557	0.01527	-0.63521	0.02698	0.03375	0.01223
IA00275	0.39888	0.00949	-1.56584	0.03837	0.05000	0.00000
IA00276	1.13199	0.02568	-1.22446	0.03401	0.13022	0.02164
IA00277	0.78228	0.02603	0.05475	0.04145	0.28967	0.01450

Table 2.4.2 IRT Parameters for Polytomous Items
ELA Grade 03 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00024	0.90569	0.01029	-0.97595	0.01100	0.25945	0.01140	-0.25945	0.01009	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00025	0.52465	0.00575	0.29249	0.01378	0.50494	0.01486	-0.50494	0.01541	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00026	0.56436	0.00686	-0.07570	0.01311	0.30148	0.01407	-0.30148	0.01396	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00027	0.55398	0.00703	-0.22415	0.01360	0.26259	0.01440	-0.26259	0.01415	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00028B	0.97429	0.00950	0.77051	0.01055	1.82287	0.01467	0.03753	0.01348	-1.86040	0.02964	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00028C	0.84614	0.00813	0.93413	0.01229	2.07137	0.01644	-0.24783	0.01635	-1.82354	0.03158	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00199	0.49531	0.00315	0.71680	0.01394	2.85105	0.02029	-0.23992	0.01640	-2.61112	0.02841	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00278A	0.95230	0.00919	0.08368	0.01122	2.29262	0.02350	-0.35322	0.01313	-1.93941	0.02118	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00278D	0.93291	0.00845	1.04593	0.01091	2.79398	0.01902	0.71758	0.01316	-1.03812	0.02204	-2.47344	0.05277	0.00000	0.00000	n/a	n/a

Table 2.4.3 IRT Parameters for Dichotomous Items
 ELA Grade 03 Paper

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00192	1.05993	0.01994	-1.38968	0.03475	0.12387	0.02247
IA00193	0.25182	0.01066	0.08384	0.16015	0.06760	0.03016
IA00198	0.74822	0.01475	-0.93695	0.04236	0.09412	0.02027
IA00195	0.36702	0.01992	1.38816	0.07617	0.14394	0.01992
IA00196	0.84905	0.01949	0.62297	0.02022	0.20890	0.00750
IA00197	0.55079	0.01879	1.25396	0.03122	0.14612	0.00995
IA00194	0.63892	0.02181	1.12145	0.03067	0.25807	0.00916
IA00263	0.82219	0.02195	-1.98872	0.09548	0.26495	0.05230
IA00264	0.78807	0.01226	-0.65963	0.02411	0.03401	0.01120
IA00266	0.95346	0.01472	-1.01848	0.02391	0.04537	0.01328
IA00268	0.55273	0.00734	-0.68383	0.01439	0.00000	0.00000
IA00272	0.85394	0.01780	-1.91709	0.06031	0.11571	0.03819
IA00271	1.37452	0.02536	-1.19767	0.02331	0.16880	0.01611
IA00274	0.88658	0.01430	-1.29370	0.03020	0.04869	0.01705
IA00273	0.78329	0.01178	-0.69493	0.02304	0.02919	0.01056
IA00275	0.40000	0.00700	-1.52319	0.02970	0.00000	0.00000
IA00276	1.08503	0.02097	-1.01696	0.03063	0.20441	0.01734
IA00277	0.91254	0.02157	0.09798	0.02716	0.33183	0.00983

Table 2.4.4 IRT Parameters for Polytomous Items
ELA Grade 03 Paper

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00024	0.94505	0.00875	-0.92668	0.00902	0.21000	0.00896	-0.21000	0.00804	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00025	0.54065	0.00470	0.39885	0.01058	0.45270	0.01143	-0.45270	0.01172	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00026	0.57073	0.00567	0.06914	0.01040	0.23134	0.01099	-0.23134	0.01090	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00027	0.50050	0.00531	-0.02843	0.01180	0.23549	0.01235	-0.23549	0.01221	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00028B	0.92695	0.00693	0.59438	0.00876	2.08515	0.01448	-0.03158	0.01061	-2.05356	0.02089	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00028C	0.80179	0.00591	0.73750	0.01026	2.36074	0.01621	-0.34907	0.01260	-2.01167	0.02240	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00199	0.49828	0.00251	1.27460	0.01114	3.10305	0.01540	-0.28181	0.01362	-2.82122	0.02719	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00278A	0.86702	0.00661	-0.17776	0.00949	2.57499	0.02640	-0.32041	0.01094	-2.25457	0.01631	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00278D	0.88460	0.00624	1.08094	0.00900	3.07110	0.01811	0.93959	0.01075	-1.04220	0.01628	-2.96848	0.04927	0.00000	0.00000	n/a	n/a

Table 2.4.5 IRT Parameters for Dichotomous Items
 ELA Grade 4 Online

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00228	0.66807	0.01115	-1.26835	0.04212	0.06667	0.01965
IA00227	0.44688	0.01363	0.00391	0.06709	0.12964	0.01943
IA00229	0.70907	0.01091	-1.02315	0.03176	0.05312	0.01488
IA00230	1.08446	0.01653	-1.27483	0.02470	0.14865	0.01510
IA00231	0.41967	0.00717	-0.57574	0.03820	0.02467	0.01135
IA00232	1.21330	0.01583	-0.82228	0.01436	0.10751	0.00858
IA00233	0.87198	0.01180	-0.88614	0.02077	0.04965	0.01072
IA00243	0.65234	0.01173	-0.67604	0.03604	0.08334	0.01503
IA00236	1.24669	0.01839	-0.66729	0.01583	0.22432	0.00875
IA00238	1.01806	0.01815	-0.91567	0.02813	0.30885	0.01326
IA00239	1.12088	0.01880	-1.63139	0.03150	0.17251	0.02094
IA00240	0.93879	0.01400	-0.57200	0.01973	0.13453	0.00978
IA00241	0.96538	0.01402	-0.77095	0.02044	0.12029	0.01074
IA00242	0.59533	0.01130	-0.36644	0.03500	0.06676	0.01341
IA00244	0.75416	0.01146	-1.42479	0.03543	0.05865	0.01846
IA00245	1.17147	0.01901	-0.94106	0.02180	0.27019	0.01177
IA00246	1.31857	0.01758	-0.99277	0.01463	0.12023	0.00940
IA00237	1.70743	0.02796	-1.61053	0.01727	0.14449	0.01432

Table 2.4.6 IRT Parameters for Polytomous Items
ELA Grade 4 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00234	0.63074	0.00260	0.18201	0.00712	2.52002	0.01253	0.03817	0.00811	-2.55819	0.01445	0.00000	0.00000	n/a	n/a
IA00247A	0.87855	0.00531	-0.43259	0.00744	2.04393	0.01753	-0.00724	0.00897	-2.03669	0.01183	0.00000	0.00000	n/a	n/a
IA00247D	0.88152	0.00496	0.49990	0.00734	2.77166	0.01584	0.91651	0.00894	-1.15137	0.01192	-2.53680	0.02405	0.00000	0.00000
IA01183	0.43203	0.00259	-1.93771	0.01174	1.62138	0.01990	-1.62138	0.01142	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01184	0.32852	0.00388	-0.32202	0.01471	0.19202	0.01478	-0.19202	0.01466	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01185	0.90746	0.00647	-1.15624	0.00735	0.35522	0.00805	-0.35522	0.00660	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01187	0.88188	0.00648	-0.55170	0.00641	0.19040	0.00667	-0.19040	0.00632	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01188B	1.00769	0.00615	-0.30802	0.00654	1.75581	0.01389	0.06622	0.00806	-1.82203	0.01069	0.00000	0.00000	n/a	n/a
IA01188C	0.98722	0.00602	-0.34043	0.00661	1.72585	0.01395	0.02922	0.00818	-1.75507	0.01038	0.00000	0.00000	n/a	n/a

Table 2.4.7 IRT Parameters for Dichotomous Items
 ELA Grade 4 Paper

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00228	0.71584	0.03272	-1.16057	0.07229	0.08040	0.03051
IA00227	0.45304	0.04501	-0.04607	0.16840	0.18263	0.04598
IA00229	0.88523	0.03849	-0.80099	0.04837	0.07806	0.02212
IA00230	1.20149	0.05752	-1.12685	0.05216	0.21074	0.02832
IA00231	0.59574	0.04198	-0.17641	0.09060	0.13190	0.03123
IA00232	1.49179	0.06927	-0.59004	0.03150	0.21941	0.01676
IA00233	1.06186	0.05212	-0.54996	0.04441	0.17282	0.02078
IA00243	0.63068	0.03980	-0.68467	0.10204	0.14280	0.03721
IA00236	1.32840	0.06347	-0.64504	0.03740	0.22335	0.01911
IA00238	0.94940	0.05053	-0.95132	0.06854	0.21572	0.03137
IA00239	1.11102	0.06144	-1.28461	0.07424	0.30808	0.03620
IA00240	1.05998	0.05270	-0.39478	0.04135	0.16698	0.01883
IA00241	0.91986	0.04642	-0.67461	0.05554	0.15160	0.02508
IA00242	0.85459	0.04757	-0.15718	0.04902	0.13791	0.01998
IA00244	0.94336	0.04651	-1.16417	0.06855	0.16505	0.03370
IA00245	1.31284	0.06898	-0.83506	0.04754	0.30977	0.02327
IA00246	1.56122	0.06497	-0.87373	0.02924	0.14908	0.01748
IA00237	1.51896	0.06840	-1.50467	0.04289	0.16297	0.02913

Table 2.4.8 IRT Parameters for Polytomous Items
 ELA Grade 4 Paper

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00234	0.53825	0.00767	0.57811	0.02816	3.33552	0.04321	0.29185	0.03219	-3.62737	0.10530	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00247A	0.75004	0.01511	-0.33021	0.02963	2.69508	0.06116	0.03949	0.03316	-2.73457	0.07277	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00247D	0.78337	0.01560	1.33523	0.02767	3.66461	0.04550	1.59911	0.03196	-1.03109	0.07204	-4.23262	0.52873	0.00000	0.00000	n/a	n/a
IA01183	0.50690	0.00976	-1.75133	0.03202	1.20533	0.04673	-1.20533	0.03265	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01184	0.32178	0.01125	-0.34643	0.04795	0.31156	0.04966	-0.31156	0.04993	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01185	0.88722	0.02019	-1.14612	0.02088	0.29569	0.02292	-0.29569	0.02082	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01186	0.27900	0.00670	-0.19090	0.05254	1.01658	0.05745	-1.01658	0.05914	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01188B	0.92618	0.01854	-0.69361	0.02318	1.66095	0.04318	0.13432	0.02826	-1.79527	0.03816	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01188C	0.97402	0.01965	-0.62830	0.02190	1.65919	0.04081	-0.06675	0.02682	-1.59243	0.03531	0.00000	0.00000	n/a	n/a	n/a	n/a

Table 2.4.9 IRT Parameters for Dichotomous Items
 ELA Grade 5 Online

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00084	0.43669	0.01505	-2.75950	0.19780	0.16241	0.07032
IA00085	0.93037	0.02990	-0.78448	0.05432	0.44251	0.01941
IA00089	0.74802	0.01386	-0.45634	0.02350	0.02658	0.00982
IA00086	0.60365	0.01835	-0.02937	0.04680	0.10332	0.01711
IA00087	0.26898	0.01279	-2.92580	0.36399	0.17299	0.07647
IA00088	0.91130	0.01955	-1.62813	0.04364	0.07592	0.02591
IA00135	0.82298	0.02017	-1.39393	0.05542	0.12602	0.02935
IA00136	1.09933	0.02511	-1.06297	0.03344	0.18872	0.01905
IA00144	0.78669	0.01814	-1.92678	0.06030	0.08551	0.03397
IA00137	0.66992	0.02017	-1.86489	0.10669	0.17522	0.05064
IA00138	1.14068	0.03182	-1.13272	0.04378	0.37270	0.02129
IA00139	0.74089	0.02107	-0.95268	0.06125	0.19996	0.02621
IA00140	0.67895	0.02083	-1.28481	0.08502	0.20093	0.03597
IA00141	1.36250	0.02840	-0.23166	0.01629	0.20416	0.00872
IA00142	1.02567	0.02528	-0.25137	0.02672	0.25102	0.01195
IA00143	1.06180	0.02336	-1.07678	0.03281	0.14710	0.01889
IA00145	0.88056	0.01960	-0.79094	0.03442	0.11022	0.01721
IA00146	0.66406	0.01114	-1.49518	0.02218	0.00000	0.00000

Table 2.4.10 IRT Parameters for Polytomous Items
 ELA Grade 5 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00029	0.67191	0.00832	-1.56076	0.01718	0.34729	0.01589	-0.34729	0.01323	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00030	0.39376	0.00286	-0.60442	0.01719	1.95870	0.02418	-1.95870	0.01994	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00031B	1.13856	0.01056	-0.19872	0.00858	1.39221	0.01591	0.05715	0.01088	-1.44937	0.01354	0.00000	0.00000	n/a	n/a
IA00031C	1.08468	0.01015	-0.30011	0.00892	1.25868	0.01597	0.10220	0.01141	-1.36088	0.01307	0.00000	0.00000	n/a	n/a
IA00090A	1.04499	0.00955	0.09074	0.00944	1.75398	0.01708	0.01104	0.01146	-1.76502	0.01835	0.00000	0.00000	n/a	n/a
IA00090D	0.99403	0.00874	1.02022	0.00985	2.76583	0.01799	0.93576	0.01191	-0.85286	0.01878	-2.84873	0.06873	0.00000	0.00000
IA00147A	0.99672	0.00919	-0.50482	0.00990	1.58109	0.02097	0.16321	0.01267	-1.74430	0.01460	0.00000	0.00000	n/a	n/a
IA00147D	0.96139	0.00824	0.29823	0.01010	2.89657	0.02787	0.79982	0.01272	-0.94183	0.01475	-2.75456	0.03728	0.00000	0.00000
IA00700	0.76224	0.01057	-1.21779	0.01559	0.08663	0.01253	-0.08663	0.01201	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00701	0.27155	0.00333	-0.38570	0.02478	0.79594	0.02708	-0.79594	0.02631	0.00000	0.00000	n/a	n/a	n/a	n/a

Table 2.4.11 IRT Parameters for Dichotomous Items
 ELA Grade 5 Paper

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00084	0.44287	0.01320	-2.68732	0.17700	0.15208	0.06483
IA00085	0.90033	0.02547	-0.69391	0.04836	0.45909	0.01622
IA00089	0.85157	0.01552	-0.29444	0.02214	0.07745	0.01021
IA00086	0.65036	0.01670	0.09797	0.03521	0.13098	0.01309
IA00087	0.35553	0.01279	-2.02182	0.20932	0.13998	0.05752
IA00088	0.87818	0.01412	-1.46360	0.02844	0.03813	0.01522
IA00135	0.90008	0.01654	-0.95610	0.03023	0.09266	0.01590
IA00136	1.29457	0.02374	-0.69269	0.01931	0.21592	0.01100
IA00144	0.68511	0.01278	-1.79091	0.04902	0.05598	0.02412
IA00137	0.66311	0.01730	-1.60959	0.08621	0.17235	0.03908
IA00138	1.04757	0.02361	-1.11250	0.03827	0.30059	0.01921
IA00139	0.93975	0.01989	-0.64739	0.03123	0.22969	0.01450
IA00140	0.78317	0.01776	-1.16919	0.05137	0.16859	0.02449
IA00141	1.55382	0.02745	-0.15689	0.01208	0.22777	0.00671
IA00142	1.02564	0.02078	-0.18510	0.02136	0.22509	0.00973
IA00143	1.16573	0.02047	-0.78769	0.02084	0.14729	0.01193
IA00145	1.01532	0.01903	-0.53589	0.02314	0.16520	0.01165
IA00146	0.67498	0.00930	-1.32101	0.01715	0.00000	0.00000

Table 2.4.12 IRT Parameters for Polytomous Items
 ELA Grade 5 Paper

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00029	0.68899	0.00733	-1.50505	0.01453	0.31340	0.01316	-0.31340	0.01111	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00030	0.40861	0.00265	-0.68982	0.01397	1.69697	0.01961	-1.69697	0.01578	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00031B	1.05463	0.00840	-0.45102	0.00784	1.38365	0.01581	0.07543	0.01017	-1.45909	0.01097	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00031C	1.00439	0.00816	-0.52763	0.00822	1.22304	0.01554	0.15453	0.01081	-1.37757	0.01087	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00090A	0.87952	0.00680	-0.01067	0.00976	2.17317	0.01968	0.20992	0.01125	-2.38309	0.02079	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00090D	0.88316	0.00679	1.45621	0.00971	3.60989	0.01949	1.59764	0.01118	-0.97888	0.02132	-4.22864	0.19261	0.00000	0.00000	n/a	n/a
IA00147A	0.85017	0.00653	-0.47523	0.01013	1.77938	0.02045	0.40430	0.01270	-2.18369	0.01561	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00147D	0.83880	0.00623	0.79257	0.01014	3.51617	0.02590	1.43438	0.01227	-1.01665	0.01631	-3.93391	0.08899	0.00000	0.00000	n/a	n/a
IA00700	0.79817	0.00925	-1.14272	0.01262	0.07962	0.01027	-0.07962	0.00986	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00701	0.25128	0.00249	-0.80785	0.02327	1.00035	0.02569	-1.00035	0.02399	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a

Table 2.4.13 IRT Parameters for Dichotomous Items
 ELA Grade 6 Online

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00299	0.99326	0.02693	-2.04570	0.07208	0.17782	0.05030
IA00300	0.77649	0.01710	-1.46626	0.05215	0.07926	0.02803
IA00306	0.73319	0.02261	-1.18581	0.08008	0.25212	0.03378
IA00301	0.83137	0.02167	-0.92022	0.05046	0.19623	0.02348
IA00303	0.92309	0.01909	-0.10946	0.02089	0.08150	0.00955
IA00302	0.85368	0.02574	-0.65590	0.05202	0.34433	0.01969
IA00304	0.79649	0.02231	-0.79996	0.05415	0.23420	0.02298
IA00321	0.74322	0.01533	-0.30822	0.02734	0.04012	0.01166
IA00305	0.95164	0.02232	-0.78397	0.03612	0.18316	0.01801
IA00340	0.70314	0.02369	0.98988	0.02460	0.13285	0.00859
IA00341	1.07386	0.02376	-0.92686	0.03184	0.17452	0.01773
IA00342	0.73600	0.01776	-0.09270	0.03062	0.07634	0.01271
IA00343	1.36765	0.02653	-0.47496	0.01677	0.15954	0.00948
IA00345	0.76805	0.01408	-1.30547	0.03394	0.03856	0.01663
IA00344	1.11381	0.02663	-0.23252	0.02408	0.26832	0.01081
IA00347	0.44406	0.00875	-0.86684	0.02282	0.05000	0.00000
IA00348	0.40900	0.02460	0.48108	0.11614	0.20639	0.02882
IA00346	0.74920	0.01905	-0.19700	0.03500	0.11510	0.01451

Table 2.4.14 IRT Parameters for Polytomous Items
 ELA Grade 6 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00017	0.79391	0.00939	-0.63374	0.01093	0.12399	0.01069	-0.12399	0.01033	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00018	0.81866	0.00693	-0.31927	0.00860	0.62153	0.01075	-0.62153	0.00976	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00019B	1.11363	0.01025	0.00117	0.00851	1.26839	0.01375	0.04165	0.01081	-1.31004	0.01374	0.00000	0.00000	n/a	n/a
IA00019C	1.10111	0.00951	0.48560	0.00839	1.52925	0.01294	0.53018	0.01086	-0.57925	0.01249	-1.48018	0.01855	0.00000	0.00000
IA00020	0.67015	0.00577	0.15305	0.01009	0.68883	0.01173	-0.68883	0.01207	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00021	0.99708	0.01107	-0.78836	0.00953	0.14202	0.00948	-0.14202	0.00894	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00307A	1.06381	0.00965	-0.25020	0.00909	1.65935	0.01832	-0.00015	0.01141	-1.65920	0.01462	0.00000	0.00000	n/a	n/a
IA00307D	1.01700	0.00837	1.01978	0.00933	3.12268	0.02066	1.33832	0.01182	-0.30457	0.01436	-1.53602	0.02683	-2.62042	0.05904
IA00349A	1.19947	0.01103	-0.13494	0.00810	1.44323	0.01510	0.01858	0.01039	-1.46180	0.01323	0.00000	0.00000	n/a	n/a
IA00349D	1.17915	0.00998	1.18926	0.00812	2.80746	0.01539	1.34802	0.01051	-0.14205	0.01335	-1.36347	0.02709	-2.64996	0.08056

Table 2.4.15 IRT Parameters for Dichotomous Items
 ELA Grade 6 Paper

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00299	1.04695	0.02553	-1.83059	0.05905	0.22001	0.03921
IA00300	0.80137	0.01709	-1.12619	0.04753	0.12763	0.02402
IA00306	0.77823	0.01930	-0.88592	0.05371	0.23958	0.02280
IA00301	0.82885	0.01738	-0.71206	0.03697	0.14431	0.01734
IA00303	0.97419	0.01767	0.24411	0.01527	0.09399	0.00670
IA00302	0.88928	0.02163	-0.47512	0.03785	0.31055	0.01499
IA00304	0.77486	0.01726	-0.65300	0.04122	0.15444	0.01818
IA00321	0.79549	0.01699	-0.16311	0.02892	0.13220	0.01221
IA00305	1.00480	0.02077	-0.49132	0.02758	0.23143	0.01287
IA00340	0.72014	0.02055	1.03029	0.02130	0.14380	0.00746
IA00341	1.12521	0.02020	-0.75444	0.02289	0.14350	0.01286
IA00342	0.69146	0.01609	0.19006	0.02884	0.09491	0.01119
IA00343	1.43249	0.02451	-0.27629	0.01365	0.18140	0.00751
IA00345	0.77093	0.01444	-0.91371	0.03611	0.06350	0.01755
IA00344	1.08178	0.02273	-0.16550	0.02226	0.27120	0.00978
IA00347	0.48226	0.00748	-0.91392	0.01890	0.00000	0.00000
IA00348	0.42803	0.01993	0.55660	0.08496	0.17451	0.02258
IA00346	0.97433	0.01971	0.21631	0.01832	0.16727	0.00785

Table 2.4.16 IRT Parameters for Polytomous Items
ELA Grade 6 Paper

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00017	0.79442	0.00816	-0.57103	0.00975	0.13247	0.00951	-0.13247	0.00914	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00018	0.85392	0.00655	-0.21706	0.00741	0.51977	0.00904	-0.51977	0.00827	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00019B	1.00300	0.00818	-0.31369	0.00832	1.29277	0.01514	0.14757	0.01083	-1.44034	0.01162	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00019C	0.97003	0.00720	0.34546	0.00823	1.60006	0.01343	0.75166	0.01092	-0.54730	0.01118	-1.80444	0.01748	0.00000	0.00000	n/a	n/a
IA00020	0.65617	0.00489	0.17904	0.00899	0.72803	0.01064	-0.72803	0.01069	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00021	1.01324	0.00988	-0.65051	0.00828	0.12687	0.00821	-0.12687	0.00779	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00307A	0.89178	0.00710	-0.51028	0.00938	1.71295	0.02068	0.08435	0.01203	-1.79730	0.01312	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00307D	0.90537	0.00646	1.15616	0.00910	3.41723	0.02108	1.83317	0.01211	-0.02317	0.01253	-1.73822	0.02658	-3.48902	0.08868	0.00000	0.00000
IA00349A	1.00777	0.00809	-0.32682	0.00834	1.49513	0.01659	0.10424	0.01076	-1.59937	0.01208	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00349D	1.04356	0.00000	1.32858	0.00794	3.00826	0.01533	1.68218	0.01040	0.01239	0.01193	-1.58121	0.02751	-3.12160	0.09309	0.00000	0.00000

Table 2.4.17 IRT Parameters for Dichotomous Items
 ELA Grade 7 Online

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00116	0.74727	0.02350	0.80985	0.02413	0.16092	0.00869
IA00117	0.49174	0.02115	-0.97103	0.14243	0.24881	0.04152
IA00118	0.64116	0.01807	-0.70610	0.05977	0.13036	0.02352
IA00119	0.33635	0.01831	-0.95328	0.24006	0.16830	0.05483
IA00120	0.69757	0.01773	-0.63754	0.04683	0.11070	0.01961
IA00124	0.58856	0.01777	-0.05170	0.04780	0.09924	0.01717
IA00121	0.50666	0.01715	0.06784	0.05817	0.08182	0.01914
IA00122	0.94365	0.02169	-1.13345	0.04101	0.16473	0.02174
IA00123	0.80646	0.02040	-0.48075	0.03848	0.18183	0.01630
IA00083	0.62603	0.01362	-1.23186	0.05142	0.05504	0.02196
IA00072	0.44110	0.01029	-2.42619	0.05156	0.05000	0.00000
IA00073	1.11038	0.02595	-1.30771	0.03867	0.21012	0.02266
IA00074	0.50642	0.00970	-1.57924	0.02938	0.05000	0.00000
IA00076	0.87067	0.01918	-0.91399	0.03708	0.11603	0.01852
IA00075	0.92828	0.02218	0.04015	0.02346	0.18339	0.01000
IA00077	0.36911	0.00844	-1.41001	0.03533	0.05000	0.00000
IA00078	0.63280	0.01546	-0.80013	0.05120	0.07102	0.02099
IA00079	0.88715	0.01988	-0.63380	0.03258	0.14116	0.01542

Table 2.4.18 IRT Parameters for Polytomous Items
 ELA Grade 7 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00080A	1.26220	0.01177	-0.38914	0.00767	1.19511	0.01471	0.09523	0.01026	-1.29034	0.01097	0.00000	0.00000	n/a	n/a
IA00080D	1.30640	0.01057	0.60098	0.00706	2.23381	0.01492	1.15519	0.01010	-0.02912	0.00992	-1.17462	0.01567	-2.18526	0.03322
IA00125A	1.13660	0.01043	-0.40872	0.00844	1.30940	0.01624	0.14825	0.01114	-1.45765	0.01225	0.00000	0.00000	n/a	n/a
IA00125D	1.18061	0.00958	0.77376	0.00788	2.68132	0.01784	1.37762	0.01093	-0.04970	0.01109	-1.34932	0.01993	-2.65992	0.05554
IA01227	0.78926	0.00827	-1.40623	0.01273	0.46458	0.01421	-0.46458	0.01092	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01228	0.35926	0.00303	0.07753	0.01766	1.27642	0.02064	-1.27642	0.02086	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01229	0.54961	0.00784	-1.02838	0.01753	0.12212	0.01472	-0.12212	0.01422	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01230	0.78143	0.01009	-0.85536	0.01258	0.05550	0.01101	-0.05550	0.01079	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01231B	1.23634	0.01193	-0.58884	0.00792	1.06099	0.01524	0.06210	0.01071	-1.12309	0.01026	0.00000	0.00000	n/a	n/a
IA01231C	1.17029	0.00996	-0.45934	0.00781	1.47686	0.01800	0.61699	0.01238	-0.50240	0.01015	-1.59145	0.01227	0.00000	0.00000

Table 2.4.19 IRT Parameters for Dichotomous Items
 ELA Grade 7 Paper

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00116	0.87018	0.02632	1.00957	0.02019	0.26057	0.00676
IA00117	0.56039	0.01743	-1.03179	0.09592	0.18972	0.03400
IA00118	0.84509	0.02028	-0.15973	0.03162	0.25237	0.01246
IA00119	0.37969	0.01511	-0.86097	0.15446	0.12459	0.04120
IA00120	0.95143	0.01911	-0.13149	0.02211	0.17229	0.00998
IA00124	0.73289	0.01872	0.34270	0.02765	0.16653	0.01048
IA00121	0.62990	0.01778	0.20071	0.03897	0.15310	0.01384
IA00122	1.06274	0.02071	-0.63339	0.02539	0.20007	0.01289
IA00123	0.95525	0.01872	-0.02436	0.01991	0.14987	0.00901
IA00083	0.87538	0.01742	-0.48671	0.02836	0.13408	0.01323
IA00072	0.47679	0.00901	-2.23460	0.03950	0.00000	0.00000
IA00073	1.09990	0.02218	-1.15853	0.03269	0.19370	0.01894
IA00074	0.58220	0.01161	-1.02524	0.04758	0.04712	0.01901
IA00076	0.90682	0.01761	-0.88801	0.03265	0.12229	0.01678
IA00075	1.02371	0.02060	0.21232	0.01703	0.17784	0.00756
IA00077	0.45037	0.00742	-0.95541	0.02065	0.00000	0.00000
IA00078	0.79787	0.01624	-0.46069	0.03092	0.10635	0.01388
IA00079	0.97730	0.01887	-0.47779	0.02481	0.16193	0.01205

Table 2.4.20 IRT Parameters for Polytomous Items
 ELA Grade 7 Paper

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00080A	0.95477	0.00782	-0.65345	0.00881	1.41411	0.01882	0.15728	0.01187	-1.57140	0.01143	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00080D	0.98362	0.00693	0.76875	0.00818	2.73726	0.01805	1.64032	0.01186	0.23976	0.01040	-1.42642	0.01800	-3.19092	0.05997	0.00000	0.00000
IA00125A	0.89112	0.00737	-0.82208	0.00953	1.45788	0.02128	0.24285	0.01325	-1.70073	0.01191	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00125D	0.90715	0.00641	0.88122	0.00891	3.10767	0.02072	1.93036	0.01309	0.30216	0.01115	-1.50460	0.02032	-3.83560	0.09741	0.00000	0.00000
IA01227	0.85406	0.00758	-1.22698	0.01007	0.49875	0.01200	-0.49875	0.00896	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01228	0.35759	0.00272	0.13926	0.01570	1.23892	0.01834	-1.23892	0.01840	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01229	0.64717	0.00743	-0.76332	0.01255	0.12649	0.01128	-0.12649	0.01085	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01230	0.80686	0.00896	-0.77799	0.01088	0.07613	0.00963	-0.07613	0.00934	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01231B	1.15545	0.01024	-0.78978	0.00771	1.06568	0.01612	0.11699	0.01085	-1.18267	0.00924	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01231C	1.14469	0.00880	-0.56715	0.00715	1.38757	0.01707	0.69070	0.01232	-0.41496	0.00933	-1.66331	0.01049	0.00000	0.00000	n/a	n/a

Table 2.4.21 IRT Parameters for Dichotomous Items
 ELA Grade 8 Online

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00200	0.52967	0.00679	-1.86797	0.02165	0.00000	0.00000
IA00203	0.85830	0.01371	-1.13379	0.03101	0.12822	0.01594
IA00204	0.34321	0.01015	-0.06133	0.08153	0.05363	0.02049
IA00207	0.57122	0.00745	-2.10444	0.02347	0.00000	0.00000
IA00202	0.64123	0.01456	0.11309	0.03175	0.20209	0.01085
IA00205	0.76873	0.01116	-0.91055	0.02601	0.05195	0.01241
IA00201	0.62888	0.01327	-1.06381	0.05623	0.16367	0.02233
IA00206	0.95123	0.01377	-1.17507	0.02484	0.09480	0.01392
IA00235	0.59412	0.01010	-1.65687	0.05437	0.06295	0.02435
IA00032	0.66669	0.00908	-1.43086	0.03093	0.03323	0.01411
IA00034	0.74180	0.00884	-1.80158	0.02067	0.01603	0.00779
IA00033	0.74253	0.01173	-1.67594	0.04264	0.06835	0.02280
IA00035	1.08868	0.01234	-1.65238	0.01465	0.01602	0.00725
IA00036	0.66713	0.00933	-1.54971	0.03394	0.03751	0.01589
IA00038	1.47430	0.02335	-1.43353	0.01946	0.19958	0.01375
IA00037	1.06469	0.01329	-0.70765	0.01431	0.06658	0.00769
IA00040	1.69441	0.02707	-1.56687	0.01674	0.15081	0.01335
IA00039	0.64111	0.00883	-0.72418	0.02402	0.02538	0.00975

Table 2.4.22 IRT Parameters for Polytomous Items
ELA Grade 8 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00041A	1.33449	0.00854	-0.51289	0.00503	1.39755	0.01166	-0.01632	0.00675	-1.38123	0.00717	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00041D	1.37777	0.00779	0.61023	0.00470	2.57148	0.01193	1.23048	0.00679	-0.12978	0.00673	-1.33685	0.01170	-2.33532	0.02594	n/a	n/a
IA00208A	1.34631	0.00910	-0.92142	0.00519	1.34673	0.01430	0.02606	0.00755	-1.37278	0.00654	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00208D	1.36896	0.00758	0.41694	0.00464	2.17758	0.01068	1.25656	0.00719	-0.05782	0.00639	-1.18393	0.00947	-2.19240	0.01938	n/a	n/a
IA01173	0.19468	0.00156	0.50908	0.02254	1.18562	0.02408	-1.18562	0.02480	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01174	0.80502	0.00570	-0.58659	0.00674	0.26297	0.00719	-0.26297	0.00669	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01175	0.26306	0.00271	0.22525	0.01723	0.45494	0.01791	-0.45494	0.01806	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01176	0.53388	0.00344	0.01787	0.00840	0.62108	0.00953	-0.62108	0.00950	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01202B	1.14040	0.00738	-0.60177	0.00575	1.14269	0.01126	0.06157	0.00766	-1.20427	0.00745	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01202C	1.07540	0.00603	-0.08724	0.00569	1.74283	0.01197	0.54585	0.00789	-0.61463	0.00758	-1.67405	0.01048	0.00000	0.00000	n/a	n/a

Table 2.4.23 IRT Parameters for Dichotomous Items
 ELA Grade 8 Paper

Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00200	0.66095	0.03136	-1.29799	0.07860	0.06548	0.02864
IA00203	1.04429	0.05988	-0.82759	0.06526	0.21493	0.02888
IA00204	0.49279	0.04621	0.29193	0.12637	0.14684	0.03603
IA00207	0.75069	0.03495	-1.79589	0.08021	0.07289	0.03268
IA00202	0.58592	0.04383	-0.12585	0.10271	0.13448	0.03296
IA00205	0.82993	0.04895	-0.52808	0.07058	0.15045	0.02778
IA00201	0.71304	0.04619	-1.03202	0.11734	0.18631	0.04424
IA00206	1.04835	0.05186	-1.06112	0.05728	0.11813	0.02749
IA00235	0.68084	0.04613	-1.04915	0.13070	0.19929	0.04741
IA00032	0.72556	0.04866	-0.84191	0.11108	0.20437	0.04066
IA00034	0.84449	0.04533	-1.48360	0.09269	0.13572	0.04258
IA00033	0.97701	0.04965	-1.35732	0.07139	0.12459	0.03491
IA00035	1.13615	0.05938	-1.42449	0.06614	0.15356	0.03531
IA00036	1.00300	0.05847	-0.99736	0.07482	0.21982	0.03329
IA00038	1.49293	0.08534	-1.39041	0.05518	0.23214	0.03231
IA00037	1.17385	0.05975	-0.47167	0.04188	0.14087	0.01889
IA00040	1.55761	0.08653	-1.19074	0.04758	0.22715	0.02721
IA00039	0.71073	0.04080	-0.60786	0.07891	0.10326	0.02947

Table 2.4.24 IRT Parameters for Polytomous Items
 ELA Grade 8 Paper

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00041A	1.14701	0.02897	-0.65863	0.02283	1.41718	0.04335	-0.04833	0.02991	-1.36886	0.03369	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00041D	1.11828	0.02551	0.92015	0.02281	2.98828	0.04389	1.61626	0.03083	0.23035	0.03362	-1.42411	0.07310	-3.41077	0.36935	0.00000	0.00000
IA00208A	1.04008	0.02736	-1.06088	0.02556	1.24999	0.05071	0.05733	0.03439	-1.30731	0.03247	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00208D	1.13510	0.02560	0.44827	0.02210	2.11994	0.03705	1.35224	0.03094	0.19838	0.03078	-1.15965	0.04794	-2.51091	0.11575	0.00000	0.00000
IA01173	0.15724	0.00507	1.11519	0.11702	1.51315	0.11863	-1.51315	0.12753	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01174	0.76771	0.02137	-0.50565	0.02658	0.24237	0.02878	-0.24237	0.02821	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01175	0.25975	0.00908	0.34217	0.07159	0.68566	0.07302	-0.68566	0.07586	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01176	0.50994	0.01365	0.04700	0.03652	0.58034	0.03950	-0.58034	0.04143	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01202B	1.00630	0.02588	-0.75925	0.02564	1.16828	0.04308	0.10337	0.03333	-1.27166	0.03517	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01202C	0.96844	0.02190	-0.07595	0.02536	1.87587	0.04523	0.55446	0.03355	-0.54698	0.03486	-1.88336	0.05459	0.00000	0.00000	n/a	n/a

Table 2.4.25 IRT Parameters for Dichotomous Items
Mathematics Grade 3 Online

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00821	0.88572	0.02653	-1.61484	0.07645	0.26851	0.03900
IA00748	1.19192	0.02423	0.33283	0.01271	0.09225	0.00563
IA00923	0.51749	0.02756	0.90050	0.05680	0.22502	0.01677
IA00702	0.98955	0.01854	-1.23815	0.02767	0.04499	0.01535
IA00924	1.05721	0.03852	0.89322	0.02165	0.34165	0.00688
IA00725	1.36529	0.03006	0.02423	0.01528	0.21103	0.00750
IA01198	1.17051	0.02489	0.40119	0.01321	0.10525	0.00576
IA00772	0.98435	0.02289	-0.88033	0.03477	0.16090	0.01792
IA01168	1.08616	0.02236	-0.62705	0.02341	0.11499	0.01233
IA00747	0.75057	0.02774	-0.55063	0.06811	0.40378	0.02102
IA00801	0.65532	0.02164	-0.63008	0.06852	0.20858	0.02503
IA00813	0.85837	0.02417	-1.73517	0.07574	0.19501	0.04186
IA00734	0.92803	0.02043	-0.94322	0.03455	0.10132	0.01803
IA00921	1.00800	0.02614	0.90957	0.01494	0.09916	0.00521
IA01223	1.03280	0.02261	-1.13741	0.03399	0.11566	0.01950
IA00862	1.08664	0.04120	0.59888	0.02629	0.46329	0.00773
IA00834	1.18758	0.02440	-0.92823	0.02464	0.11941	0.01442
IA00855	1.23385	0.02737	-0.25942	0.01952	0.20987	0.00969
IA01195	1.08546	0.02884	0.00991	0.02396	0.29160	0.00991
IA00811	0.90672	0.02683	0.40095	0.02468	0.23600	0.00940
IA00736	0.68871	0.01350	-0.76714	0.03122	0.03133	0.01281
IA00718	0.82166	0.06289	-0.95477	0.08903	0.13308	0.03835
IA00749	0.98621	0.07726	-0.79650	0.07239	0.17911	0.03230
IA01196	0.88854	0.07888	-0.39233	0.07247	0.17324	0.02864
IA00769	0.53310	0.01120	-2.17654	0.03962	0.00000	0.00000
IA00717	0.81728	0.01362	-1.24187	0.01876	0.00000	0.00000
IA00704	0.74611	0.01146	0.02208	0.01162	0.00000	0.00000
IA00714	0.99434	0.01392	0.35171	0.00939	0.00000	0.00000
IA00710	0.73128	0.01182	-0.80485	0.01595	0.00000	0.00000
IA00752	1.20150	0.01489	-0.15755	0.00792	0.00000	0.00000

continued

Parameters and Measures of Standard Error						
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
wIA01205	0.99219	0.01382	0.72748	0.01045	0.00000	0.00000
IA00770	0.97027	0.01306	-0.77559	0.01125	0.00000	0.00000
IA00850	1.09848	0.01471	-0.88892	0.01082	0.00000	0.00000
IA00737	1.03699	0.01320	-0.13978	0.00876	0.00000	0.00000
IA01206	0.92559	0.01331	-0.50065	0.01140	0.00000	0.00000
IA00887	0.91187	0.01261	0.54390	0.01035	0.00000	0.00000
IA00889	0.95978	0.01247	-0.20669	0.00937	0.00000	0.00000
IA00703	0.57803	0.03625	-2.44033	0.08849	0.00000	0.00000
IA00726	0.96227	0.04371	0.04246	0.03902	0.00000	0.00000

Table 2.4.26 IRT Parameters for Polytomous Items
Mathematics Grade 3 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00004	0.80840	0.00708	1.06527	0.00994	0.92260	0.01032	-0.92260	0.01553	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00739	0.76988	0.00537	-0.27970	0.00880	1.32905	0.01392	0.02290	0.01070	-1.35196	0.01187	0.00000	0.00000	n/a	n/a
IA00926	1.00557	0.00804	0.54416	0.00775	1.02931	0.00913	-1.02931	0.01195	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00931	0.99076	0.00831	0.43756	0.00766	0.70875	0.00895	-0.70875	0.01028	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01179	1.14969	0.00979	-0.05963	0.00666	0.55554	0.00847	-0.55554	0.00807	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01221	0.96816	0.00816	-0.00843	0.00754	0.59501	0.00943	-0.06307	0.00882	-0.53194	0.00912	0.00000	0.00000	n/a	n/a

Table 2.4.27 IRT Parameters for Dichotomous Items
 Mathematics Grade 3 Paper

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00821	0.80401	0.02274	-1.67274	0.08768	0.38335	0.03637
IA00748	1.13471	0.01769	0.35217	0.01036	0.07800	0.00456
IA00923	0.48814	0.01932	0.75827	0.05153	0.18050	0.01522
IA00702	1.00388	0.01604	-1.12019	0.02474	0.06634	0.01412
IA00924	1.02133	0.02877	0.84078	0.01834	0.35964	0.00591
IA00718	0.98203	0.01944	-0.80119	0.03075	0.23603	0.01475
IA00749	0.97637	0.01731	-0.86047	0.02702	0.13791	0.01412
IA01196	1.00355	0.01905	-0.54195	0.02506	0.21783	0.01179
IA00725	1.38904	0.02383	0.02177	0.01233	0.22112	0.00613
IA01198	1.19115	0.01847	0.34871	0.00998	0.08560	0.00446
IA00772	1.05548	0.01842	-0.70613	0.02295	0.16255	0.01194
IA01168	1.10805	0.01838	-0.52484	0.01868	0.14597	0.00970
IA00747	0.75864	0.02169	-0.66045	0.05749	0.41293	0.01804
IA00801	0.63807	0.01691	-0.62187	0.05864	0.21379	0.02099
IA00813	0.85674	0.01663	-1.68177	0.04855	0.10453	0.02847
IA00734	0.95637	0.01510	-1.02365	0.02435	0.05841	0.01324
IA00921	0.98436	0.02044	0.91307	0.01243	0.11929	0.00459
IA01223	1.03842	0.01855	-1.06472	0.02822	0.14711	0.01585
IA00862	1.20381	0.03520	0.62798	0.01936	0.49909	0.00565
IA00834	1.08854	0.01857	-0.88078	0.02328	0.14213	0.01291
IA00855	1.17258	0.01885	-0.24636	0.01479	0.14117	0.00749
IA01195	1.18374	0.02571	0.10324	0.01848	0.36163	0.00731
IA00811	0.92147	0.02041	0.44442	0.01850	0.21948	0.00722
IA00736	0.69389	0.01396	-0.77960	0.04069	0.08428	0.01766
IA00769	0.61876	0.01017	-2.30865	0.03150	0.00000	0.00000
IA00703	0.62911	0.00954	-2.00599	0.02588	0.00000	0.00000
IA00752	1.21327	0.01177	0.08028	0.00608	0.00000	0.00000
IA01205	0.91628	0.01017	0.79838	0.00865	0.00000	0.00000
IA00770	1.02098	0.01059	-0.65382	0.00839	0.00000	0.00000
IA00850	1.03570	0.01094	-0.80819	0.00890	0.00000	0.00000
IA00737	0.96150	0.00979	-0.21050	0.00752	0.00000	0.00000
IA00726	0.98259	0.00992	-0.04756	0.00716	0.00000	0.00000
IA00887	0.87634	0.00948	0.51753	0.00806	0.00000	0.00000
IA00889	0.99032	0.00998	-0.13302	0.00723	0.00000	0.00000

Table 2.4.28 IRT Parameters for Polytomous Items
 Mathematics Grade 3 Paper

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00004	0.82140	0.00549	0.98025	0.00745	0.90729	0.00800	-0.90729	0.01120	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00739	0.70716	0.00387	-0.44405	0.00757	1.35636	0.01242	0.22039	0.00945	-1.57675	0.00985	0.00000	0.00000	n/a	n/a
IA00926	1.02637	0.00644	0.34785	0.00580	0.90397	0.00726	-0.90397	0.00795	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00931	0.95040	0.00618	0.53984	0.00622	0.77426	0.00729	-0.77426	0.00847	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01179	1.18473	0.00798	0.04025	0.00512	0.52169	0.00648	-0.52169	0.00618	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01221	0.97738	0.00642	-0.04652	0.00589	0.60731	0.00756	-0.05083	0.00690	-0.55647	0.00703	0.00000	0.00000	n/a	n/a

Table 2.4.29 IRT Parameters for Dichotomous Items
Mathematics Grade 4 Online

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00828	0.83437	0.01352	-1.05009	0.03081	0.14400	0.01497
IA00727	0.90513	0.01672	-1.04548	0.03451	0.30187	0.01514
IA00729	0.74470	0.01083	-2.11030	0.03837	0.04760	0.02072
IA00728	0.78637	0.01334	-1.22516	0.03745	0.13922	0.01813
IA01214	0.53025	0.01404	0.79454	0.02722	0.09726	0.00930
IA00839	1.13844	0.01679	-0.00532	0.01221	0.19524	0.00570
IA00738	0.85021	0.01667	0.22394	0.01948	0.25494	0.00726
IA01222	1.07043	0.01788	-0.67689	0.02178	0.30432	0.00996
IA00868	0.95971	0.01760	-1.57841	0.04081	0.25572	0.02177
IA00773	0.91393	0.02104	-0.75783	0.03919	0.50488	0.01213
IA00733	1.34038	0.02240	0.77055	0.00849	0.19069	0.00333
IA00780	1.09032	0.01634	0.38959	0.01020	0.14318	0.00443
IA00906	0.80270	0.01819	-0.15180	0.03107	0.38531	0.00985
IA00735	0.89357	0.01455	-0.69951	0.02482	0.19767	0.01136
IA00958	0.91036	0.01481	0.31693	0.01344	0.14119	0.00562
IA00744	1.32535	0.01883	-0.63783	0.01394	0.22653	0.00769
IA01171	1.47806	0.01618	-0.46357	0.00775	0.06061	0.00430
IA00779	0.93367	0.01477	-1.39241	0.03135	0.14253	0.01746
IA00959	0.98954	0.01814	0.05586	0.01771	0.30398	0.00690
IA00732	0.28602	0.04389	-0.62277	0.49802	0.26085	0.08372
IA00716	0.76714	0.05029	-0.69683	0.06885	0.13645	0.02731
IA00837	0.89323	0.00773	0.11009	0.00618	0.00000	0.00000
IA00719	0.89630	0.00899	-1.46201	0.01126	0.00000	0.00000
IA01177	0.76313	0.00776	-1.35524	0.01196	0.00000	0.00000
IA00870	0.95048	0.00811	0.20972	0.00594	0.00000	0.00000
IA00783	0.48233	0.00634	-1.77073	0.02196	0.00000	0.00000
IA01167	1.00058	0.00838	0.12022	0.00567	0.00000	0.00000
IA00731	1.98041	0.05317	0.76028	0.01125	0.57621	0.00331
IA00814	0.77612	0.00894	-1.92962	0.01676	0.00000	0.00000
IA00745	0.92461	0.01009	-1.49626	0.01262	0.00000	0.00000
IA00750	0.77106	0.00706	-0.45849	0.00762	0.00000	0.00000
IA00715	0.62660	0.00703	-0.97641	0.01251	0.00000	0.00000

continued

Parameters and Measures of Standard Error						
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
IA00742	0.60152	0.00619	-0.03327	0.00851	0.00000	0.00000
IA00705	0.71208	0.00684	0.33770	0.00765	0.00000	0.00000
IA00722	1.00692	0.03387	-0.02999	0.02794	0.00000	0.00000

Table 2.4.30 IRT Parameters for Polytomous Items
Mathematics Grade 4 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00001	0.97427	0.00605	-1.27259	0.00622	0.72735	0.00950	-0.72735	0.00601	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00711	1.46800	0.00934	1.13141	0.00453	0.42409	0.00455	0.02617	0.00510	-0.45027	0.00649	0.00000	0.00000	n/a	n/a
IA00741	1.04462	0.00488	0.85551	0.00453	1.20193	0.00555	0.00914	0.00584	-1.21107	0.00964	0.00000	0.00000	n/a	n/a
IA00795	0.93911	0.00408	-0.49470	0.00465	1.17290	0.00832	0.57698	0.00677	-0.37638	0.00579	-1.37350	0.00636	0.00000	0.00000
IA00968	1.35540	0.00607	-0.06851	0.00336	0.94340	0.00546	0.17210	0.00448	-0.25418	0.00440	-0.86133	0.00487	0.00000	0.00000
IA01215	0.89861	0.00465	0.20210	0.00525	0.87461	0.00650	-0.87461	0.00691	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01232	1.39810	0.00800	0.66491	0.00392	0.53636	0.00442	-0.53636	0.00553	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01236	1.07762	0.00580	-0.01695	0.00448	0.63291	0.00571	-0.63291	0.00553	0.00000	0.00000	n/a	n/a	n/a	n/a

Table 2.4.31 IRT Parameters for Dichotomous Items
Mathematics Grade 4 Paper

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00828	0.89229	0.04465	-0.85379	0.06413	0.18698	0.02683
IA00727	0.86005	0.05038	-1.11332	0.09368	0.30864	0.03542
IA00729	0.70044	0.03084	-2.04755	0.09664	0.09867	0.04180
IA00728	0.75253	0.03838	-1.31874	0.09400	0.15754	0.03897
IA01214	0.57525	0.04679	0.79715	0.06619	0.11947	0.01976
IA00839	1.12745	0.05621	0.05957	0.03263	0.16810	0.01293
IA00738	0.88967	0.04920	-0.06760	0.04739	0.18366	0.01782
IA00732	1.57547	0.17042	0.84644	0.04819	0.56996	0.00945
IA01222	0.88770	0.04763	-0.98699	0.07613	0.24450	0.03084
IA00868	0.84008	0.04151	-1.77048	0.09859	0.17221	0.04669
IA00773	0.95109	0.06819	-0.57010	0.08420	0.48527	0.02404
IA00733	1.31754	0.08406	0.86279	0.03172	0.17199	0.00848
IA00780	1.16806	0.06591	0.52962	0.03102	0.16668	0.01032
IA00906	0.63304	0.04449	-0.52958	0.11158	0.24165	0.03506
IA00735	0.94806	0.04797	-0.62958	0.05523	0.20445	0.02275
IA00716	0.72350	0.03613	-0.86483	0.07475	0.11667	0.02915
IA00958	0.93752	0.05541	0.46493	0.03804	0.15744	0.01283
IA00744	1.28101	0.06132	-0.65289	0.04028	0.25114	0.01850
IA01171	1.46860	0.05894	-0.37476	0.02446	0.11981	0.01155
IA00779	0.88122	0.04394	-1.32193	0.08053	0.19213	0.03592
IA00959	0.93699	0.05563	0.10671	0.04559	0.22693	0.01641
IA00837	0.79143	0.02415	0.28549	0.02646	0.00000	0.00000
IA00719	0.78627	0.02348	-1.36388	0.02967	0.00000	0.00000
IA01177	0.76073	0.02254	-1.17914	0.02821	0.00000	0.00000
IA00870	1.05276	0.02966	0.19263	0.02037	0.00000	0.00000
IA00783	0.56475	0.01928	-1.33402	0.03840	0.00000	0.00000
IA01167	1.09625	0.03041	0.12704	0.01935	0.00000	0.00000
IA00814	0.77469	0.02448	-1.72679	0.03569	0.00000	0.00000
IA00722	0.89516	0.02537	-0.02465	0.02170	0.00000	0.00000
IA00742	0.58145	0.01966	0.07380	0.03180	0.00000	0.00000
IA00705	0.72123	0.02301	0.38144	0.02983	0.00000	0.00000
IA00750	0.64399	0.02037	-0.14520	0.02762	0.00000	0.00000

Table 2.4.32 IRT Parameters for Polytomous Items
 Mathematics Grade 4 Paper

Parameters and Measures of Standard Error																
Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00001	0.96371	0.01835	-1.38578	0.01860	0.77682	0.02766	-0.77682	0.01977	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00711	1.48043	0.03595	0.96633	0.01768	0.35766	0.01670	-0.06371	0.01965	-0.29395	0.02230	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00741	0.93237	0.01472	0.53465	0.01701	1.22784	0.02027	0.09576	0.02134	-1.32360	0.03590	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00795	0.91491	0.01336	-0.74606	0.01584	1.14579	0.02571	0.53802	0.02187	-0.37786	0.01994	-1.30596	0.02226	0.00000	0.00000	n/a	n/a
IA00968	1.33558	0.02021	-0.08569	0.01160	0.94937	0.01667	0.16161	0.01521	-0.25160	0.01573	-0.85940	0.01869	0.00000	0.00000	n/a	n/a
IA01215	0.81132	0.01447	0.32643	0.02019	0.93536	0.02246	-0.93536	0.02937	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01232	1.41585	0.02984	0.73294	0.01517	0.55185	0.01561	-0.55185	0.02318	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01236	1.00513	0.01842	0.06983	0.01656	0.64634	0.01911	-0.64634	0.02187	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a

Table 2.4.33 IRT Parameters for Dichotomous Items
Mathematics Grade 5 Online

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00941	0.94681	0.02946	-1.90320	0.08932	0.28319	0.05287
IA00872	0.59260	0.02156	-0.22675	0.07027	0.21190	0.02318
IA00809	0.65359	0.01331	-2.25443	0.03611	0.00000	0.00000
IA01166	0.76663	0.02624	0.87807	0.02627	0.20950	0.00888
IA00815	1.41962	0.03321	0.71906	0.01189	0.17837	0.00465
IA01213	1.16457	0.02948	0.44397	0.01716	0.24689	0.00692
IA00746	0.70426	0.02704	0.21146	0.05022	0.35307	0.01485
IA00829	0.56415	0.01644	-0.37105	0.05835	0.07698	0.02147
IA01208	1.24518	0.02519	0.14272	0.01404	0.14188	0.00670
IA01218	0.88220	0.02065	0.55850	0.01736	0.08418	0.00689
IA01170	0.87335	0.02384	-0.33647	0.03755	0.25982	0.01537
IA01189	0.67378	0.01984	-1.22787	0.08160	0.16179	0.03620
IA00935	0.94196	0.02426	-0.11460	0.02867	0.24173	0.01202
IA00724	1.62642	0.03697	-1.70287	0.02500	0.08075	0.02190
IA00885	1.31843	0.02637	-0.71092	0.01984	0.15394	0.01209
IA00802	0.55052	0.00985	-1.10672	0.02124	0.05000	0.00000
IA00730	0.98009	0.03398	0.97185	0.02186	0.30584	0.00673
IA00901	1.25155	0.02943	0.28573	0.01603	0.23719	0.00698
IA01209	1.25242	0.03336	0.93555	0.01403	0.19377	0.00481
IA00721	0.85190	0.08589	-0.08613	0.07539	0.17844	0.02712
IA00709	0.60419	0.06374	-0.67539	0.15381	0.17095	0.05287
IA00723	1.16005	0.08414	-0.37449	0.04444	0.10982	0.01894
IA00713	1.23410	0.11490	0.05249	0.05113	0.20424	0.01679
IA01197	0.56665	0.00896	-0.45184	0.01436	0.00000	0.00000
IA00720	1.04013	0.01336	-0.00094	0.00854	0.00000	0.00000
IA00708	0.72524	0.01124	-0.73290	0.01440	0.00000	0.00000
IA00743	0.89001	0.01237	-0.47416	0.01077	0.00000	0.00000
IA01027	0.91951	0.01200	-0.67970	0.01049	0.00000	0.00000
IA00753	0.62767	0.00938	0.41465	0.01306	0.00000	0.00000

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00706	0.69426	0.01059	0.55140	0.01280	0.00000	0.00000
IA01026	0.87362	0.01164	0.66924	0.01094	0.00000	0.00000
IA00771	0.68709	0.01104	-1.36153	0.01931	0.00000	0.00000
IA00776	0.85145	0.01140	-0.70065	0.01125	0.00000	0.00000
IA00712	0.86485	0.01221	-0.53240	0.01129	0.00000	0.00000
IA00751	0.81557	0.01240	-1.34420	0.01663	0.00000	0.00000
IA00775	0.81191	0.01090	0.52098	0.01094	0.00000	0.00000
IA00707	0.62799	0.03390	0.09165	0.05948	0.00000	0.00000

Table 2.4.34 IRT Parameters for Polytomous Items
Mathematics Grade 5 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00002	0.60404	0.00756	-1.51019	0.01782	0.33752	0.01611	-0.33752	0.01387	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00003	0.93320	0.00766	-0.59079	0.00787	0.71092	0.01076	-0.71092	0.00881	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00022	0.52943	0.00419	-0.27226	0.01247	1.12845	0.01582	-1.12845	0.01466	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00740	1.40073	0.01127	0.94633	0.00595	0.68381	0.00663	0.21512	0.00710	-0.89892	0.01156	0.00000	0.00000	n/a	n/a
IA00892	0.96110	0.00641	-0.38274	0.00679	1.02347	0.01088	0.42824	0.00916	-0.32735	0.00843	-1.12436	0.00915	0.00000	0.00000
IA01032	0.79390	0.00525	0.42781	0.00808	1.39736	0.01092	0.39960	0.00981	-0.68353	0.01122	-1.11343	0.01270	0.00000	0.00000
IA01169	0.94979	0.00659	0.24134	0.00699	1.00623	0.00927	-0.00871	0.00861	-0.99752	0.01045	0.00000	0.00000	n/a	n/a
IA01226	1.06584	0.00854	0.04357	0.00672	0.63080	0.00834	-0.63080	0.00848	0.00000	0.00000	n/a	n/a	n/a	n/a

Table 2.4.35 IRT Parameters for Dichotomous Items
 Mathematics Grade 5 Paper

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00941	0.78106	0.01968	-2.37566	0.09430	0.17873	0.05602
IA00872	0.63615	0.01865	-0.09880	0.04761	0.24823	0.01523
IA00809	0.59588	0.00996	-2.28116	0.03037	0.00000	0.00000
IA00721	0.86525	0.01802	-0.01190	0.02235	0.17079	0.00908
IA01166	0.84278	0.02442	1.04514	0.01947	0.22912	0.00597
IA00815	1.35248	0.02604	0.66633	0.01028	0.16164	0.00396
IA00709	0.90860	0.02243	-0.19557	0.03017	0.34892	0.01068
IA00723	0.86920	0.01514	-0.36758	0.02073	0.07298	0.00942
IA01213	1.04856	0.02113	0.35461	0.01503	0.18612	0.00606
IA00746	0.75743	0.02291	0.04467	0.03962	0.38584	0.01156
IA00829	0.60863	0.01497	-0.33181	0.04417	0.10542	0.01625
IA01208	1.23089	0.02128	0.21100	0.01166	0.14201	0.00519
IA01218	0.84272	0.01741	0.55163	0.01603	0.09956	0.00607
IA01170	0.86592	0.01901	-0.31606	0.02866	0.23156	0.01155
IA01189	0.66157	0.01581	-1.28891	0.06499	0.13787	0.02830
IA00935	0.87984	0.01943	-0.18839	0.02657	0.23791	0.01052
IA00724	1.31415	0.02128	-1.82342	0.01890	0.02981	0.01215
IA00885	1.18858	0.01938	-0.77946	0.01745	0.11202	0.00984
IA00802	0.54898	0.00817	-1.22009	0.01857	0.05000	0.00000
IA00730	0.93566	0.02612	0.84244	0.01912	0.29132	0.00603
IA00713	1.04493	0.01857	-0.25278	0.01752	0.14752	0.00820
IA00901	1.19702	0.02425	0.29900	0.01417	0.23919	0.00582
IA01209	1.17076	0.02564	0.92270	0.01211	0.16568	0.00405
IA01197	0.56829	0.00741	-0.38194	0.01196	0.00000	0.00000
IA01027	0.86033	0.00932	-0.37053	0.00854	0.00000	0.00000
IA00753	0.67179	0.00817	0.44389	0.01076	0.00000	0.00000
IA00707	0.68311	0.00806	-0.15565	0.00989	0.00000	0.00000
IA01026	0.82261	0.00974	0.85965	0.01080	0.00000	0.00000
IA00771	0.70102	0.00910	-1.33391	0.01516	0.00000	0.00000
IA00776	0.74058	0.00857	-0.58855	0.01020	0.00000	0.00000
IA00751	0.73438	0.00859	-0.67439	0.01060	0.00000	0.00000
IA00775	0.80889	0.00933	0.64051	0.00991	0.00000	0.00000

Table 2.4.36 IRT Parameters for Polytomous Items
Mathematics Grade 5 Paper

Item ID	Parameters and Measures of Standard Error															
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00002	0.61129	0.00634	-1.63218	0.01517	0.37414	0.01418	-0.37414	0.01196	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00003	0.87906	0.00623	-0.67229	0.00718	0.73779	0.00981	-0.73779	0.00799	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00022	0.50607	0.00344	-0.20076	0.01116	1.16313	0.01391	-1.16313	0.01330	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00740	1.40224	0.00950	0.70087	0.00491	0.60181	0.00572	0.20688	0.00587	-0.80869	0.00824	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00892	1.01096	0.00556	-0.34653	0.00552	1.16850	0.00935	0.37584	0.00749	-0.25132	0.00706	-1.29302	0.00803	0.00000	0.00000	n/a	n/a
IA01032	0.77838	0.00454	0.43737	0.00715	1.28408	0.00931	0.45696	0.00864	-0.65854	0.00979	-1.08250	0.01100	0.00000	0.00000	n/a	n/a
IA01169	0.91208	0.00540	-0.40401	0.00626	1.07176	0.00976	0.04737	0.00782	-1.11913	0.00822	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01226	1.01429	0.00697	-0.03421	0.00606	0.65969	0.00761	-0.65969	0.00755	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a

Table 2.4.37 IRT Parameters for Dichotomous Items
Mathematics Grade 6 Online

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00784	0.89647	0.02425	-2.38400	0.08342	0.15402	0.05671
IA01191	0.91153	0.01236	-1.08678	0.01296	0.00000	0.00000
IA00766	1.28944	0.02378	-0.52774	0.01674	0.12113	0.00934
IA00818	1.39260	0.03400	0.76529	0.01213	0.19690	0.00475
IA00992	1.94959	0.09298	1.56843	0.01688	0.35190	0.00353
IA00848	1.72197	0.03196	-0.93373	0.01424	0.10936	0.00982
IA00978	1.08165	0.03261	1.41855	0.01690	0.10207	0.00376
IA00894	1.01904	0.01939	-0.07679	0.01676	0.07632	0.00778
IA01234	0.71118	0.01993	-0.78892	0.05798	0.17999	0.02373
IA00785	1.21177	0.03099	-1.56452	0.04472	0.19006	0.03126
IA00817	1.36085	0.02887	0.37469	0.01248	0.17894	0.00563
IA00790	0.42716	0.02806	0.33644	0.13220	0.32860	0.02865
IA00833	0.73507	0.01355	-1.16730	0.03367	0.03722	0.01549
IA00761	1.38970	0.02951	1.03221	0.01014	0.06032	0.00284
IA00758	1.39841	0.02905	-0.38973	0.01743	0.23487	0.00926
IA01210	0.61182	0.06391	-0.49548	0.12572	0.12892	0.04335
IA01172	0.64687	0.10285	0.25286	0.13767	0.27528	0.03758
IA00819	0.79343	0.01036	-0.03221	0.01003	0.00000	0.00000
IA01237	0.62002	0.00974	-0.36106	0.01379	0.00000	0.00000
IA01219	0.70292	0.00968	-0.24124	0.01135	0.00000	0.00000
IA00970	1.15820	0.01517	0.85569	0.00933	0.00000	0.00000
IA00762	0.96969	0.01196	-0.47395	0.00943	0.00000	0.00000
IA01204	0.65130	0.00997	-1.15261	0.01766	0.00000	0.00000
IA00820	1.16207	0.01440	-0.78962	0.00933	0.00000	0.00000
IA00757	1.01186	0.01309	0.37477	0.00876	0.00000	0.00000
IA00804	0.59158	0.00945	-1.13045	0.01894	0.00000	0.00000
IA00754	0.48353	0.03981	1.45137	0.17822	0.00000	0.00000

Table 2.4.38 IRT Parameters for Polytomous Items
Mathematics Grade 6 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00006	0.74548	0.00727	-1.05294	0.01156	0.63824	0.01468	-0.63824	0.01105	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00007	0.84859	0.02471	-0.62243	0.02962	0.75236	0.03412	-0.75236	0.03933	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00016	0.57584	0.00461	-0.31244	0.01148	1.01121	0.01467	-1.01121	0.01332	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00023	1.32770	0.00844	0.19013	0.00498	1.03735	0.00770	0.34091	0.00669	-0.29505	0.00680	-1.08321	0.00855	0.00000	0.00000
IA00810	1.12764	0.00888	0.74233	0.00666	0.62827	0.00755	0.10427	0.00781	-0.12203	0.00817	-0.61051	0.00963	0.00000	0.00000
IA00971	1.43048	0.01015	-0.62694	0.00507	0.69825	0.00867	0.29457	0.00740	-0.12129	0.00668	-0.87153	0.00644	0.00000	0.00000
IA01178	1.15498	0.00892	0.41561	0.00644	0.87392	0.00784	-0.87392	0.00938	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01180	1.55822	0.01567	1.09117	0.00664	0.30244	0.00660	-0.00195	0.00722	-0.30049	0.00831	0.00000	0.00000	n/a	n/a
IA01192	1.23531	0.01008	0.98495	0.00665	0.62222	0.00717	0.10362	0.00775	-0.72584	0.01095	0.00000	0.00000	n/a	n/a
IA01224	1.34366	0.00863	0.23543	0.00507	1.12809	0.00819	0.44029	0.00691	-0.30339	0.00695	-1.26499	0.00957	0.00000	0.00000
IA01225	1.94723	0.06462	0.50455	0.01983	0.77469	0.02127	0.29089	0.02572	-0.16211	0.03360	-0.90347	0.05838	0.00000	0.00000
IA01233	1.15446	0.00969	0.46405	0.00655	0.49340	0.00748	-0.49340	0.00837	0.00000	0.00000	n/a	n/a	n/a	n/a

Table 2.4.39 IRT Parameters for Dichotomous Items
Mathematics Grade 6 Paper

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00784	0.83034	0.01839	-2.50316	0.06868	0.10992	0.04455
IA01191	0.85440	0.00996	-1.02313	0.01124	0.00000	0.00000
IA01210	0.55290	0.00758	-0.94785	0.01555	0.00000	0.00000
IA00766	1.24144	0.02168	-0.43076	0.01621	0.18708	0.00828
IA00818	1.23954	0.02502	0.78921	0.01117	0.15894	0.00410
IA00992	1.84252	0.06827	1.55118	0.01391	0.34227	0.00311
IA00848	1.56018	0.02553	-0.92284	0.01381	0.12341	0.00888
IA00978	1.13171	0.02514	1.23162	0.01214	0.10281	0.00324
IA00894	1.05032	0.01659	-0.04673	0.01323	0.07046	0.00593
IA01234	0.66921	0.01710	-0.97419	0.06136	0.20225	0.02384
IA01172	0.85212	0.02386	0.51813	0.02498	0.32542	0.00795
IA00817	1.37577	0.02484	0.36902	0.01080	0.17935	0.00472
IA00790	0.36623	0.02095	-0.12465	0.17308	0.27383	0.03551
IA00833	0.75746	0.01237	-1.06927	0.02898	0.03771	0.01346
IA00761	1.31680	0.02471	1.03105	0.00952	0.07968	0.00279
IA00758	1.43758	0.02775	-0.24367	0.01497	0.29914	0.00721
IA00819	0.73152	0.00843	0.07593	0.00941	0.00000	0.00000
IA01219	0.66763	0.00801	-0.32463	0.01053	0.00000	0.00000
IA00970	1.13124	0.01238	0.75616	0.00788	0.00000	0.00000
IA00762	0.90972	0.00974	-0.35628	0.00835	0.00000	0.00000
IA01204	0.64047	0.00836	-1.14675	0.01513	0.00000	0.00000
IA00820	1.07150	0.01152	-0.76183	0.00844	0.00000	0.00000
IA00754	0.58244	0.00813	1.04848	0.01572	0.00000	0.00000
IA00804	0.59837	0.00792	-0.99768	0.01488	0.00000	0.00000

Table 2.4.40 IRT Parameters for Polytomous Items
Mathematics Grade 6 Paper

Item ID	Parameters and Measures of Standard Error															
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00007	0.93496	0.00705	-0.87873	0.00741	0.62989	0.01000	-0.62989	0.00778	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00016	0.65689	0.00462	-0.29825	0.00893	0.88322	0.01138	-0.88322	0.01040	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00023	1.27806	0.00712	0.33716	0.00455	1.09586	0.00674	0.35829	0.00604	-0.30998	0.00635	-1.14417	0.00831	0.00000	0.00000	n/a	n/a
IA00810	1.10510	0.00756	0.66668	0.00586	0.63341	0.00677	0.08619	0.00694	-0.12413	0.00720	-0.59547	0.00823	0.00000	0.00000	n/a	n/a
IA00971	1.39436	0.00864	-0.67422	0.00457	0.71807	0.00779	0.31063	0.00668	-0.13124	0.00601	-0.89745	0.00582	0.00000	0.00000	n/a	n/a
IA01178	1.11433	0.00757	0.51905	0.00588	0.93156	0.00704	-0.93156	0.00888	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01180	1.38116	0.01198	1.09729	0.00638	0.29888	0.00633	0.03840	0.00674	-0.33729	0.00782	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01192	1.14652	0.00810	0.81296	0.00599	0.57523	0.00663	0.09477	0.00694	-0.67000	0.00877	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01225	1.73640	0.01044	0.52343	0.00368	0.78807	0.00513	0.30039	0.00496	-0.20153	0.00532	-0.88692	0.00691	0.00000	0.00000	n/a	n/a
IA01233	1.16523	0.00858	0.49863	0.00578	0.48854	0.00657	-0.48854	0.00740	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a

Table 2.4.41 IRT Parameters for Dichotomous Items
 Mathematics Grade 7 Online

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA01199	0.83841	0.01653	-1.09070	0.03468	0.05485	0.01863
IA00807	1.23217	0.02277	-0.23550	0.01506	0.10394	0.00808
IA00796	1.51824	0.02905	0.19525	0.01087	0.14350	0.00539
IA00909	1.20942	0.02992	-1.43399	0.04086	0.21718	0.02771
IA01003	1.29740	0.02384	-0.41662	0.01553	0.10951	0.00893
IA00920	1.15822	0.02399	-0.20831	0.01871	0.16668	0.00951
IA00955	0.77265	0.02875	0.69469	0.03339	0.32596	0.01018
IA00953	0.91246	0.01726	0.12473	0.01617	0.03952	0.00704
IA00945	0.68829	0.01743	-1.06045	0.06007	0.10089	0.02784
IA00768	0.81988	0.01824	-1.67412	0.05381	0.08478	0.03183
IA00844	1.13008	0.03025	1.04799	0.01488	0.16159	0.00474
IA00907	1.15568	0.02629	-0.44787	0.02432	0.24425	0.01228
IA01190	0.53336	0.01720	-0.97169	0.09666	0.12189	0.03548
IA01015	1.17946	0.01926	-0.30345	0.01314	0.03790	0.00674
IA01235	1.06706	0.02574	-0.33814	0.02686	0.26342	0.01241
IA00808	0.90533	0.02433	0.40250	0.02322	0.21076	0.00900
IA00765	0.83760	0.11739	0.56897	0.10817	0.15597	0.02203
IA00883	0.55577	0.05997	-1.06622	0.17396	0.14528	0.05932
IA01212	0.87939	0.01399	-1.57609	0.01826	0.00000	0.00000
IA01220	0.86548	0.01149	-0.72858	0.01105	0.00000	0.00000
IA00847	0.89944	0.01128	-0.27067	0.00922	0.00000	0.00000
IA00797	0.69968	0.01073	-1.17232	0.01678	0.00000	0.00000
IA00764	0.58438	0.00934	0.01461	0.01313	0.00000	0.00000
IA00755	1.21033	0.01582	-0.69644	0.00900	0.00000	0.00000
IA00917	1.04403	0.01258	0.32169	0.00841	0.00000	0.00000
IA00918	1.58718	0.01858	0.41844	0.00646	0.00000	0.00000

Table 2.4.42 IRT Parameters for Polytomous Items
 Mathematics Grade 7 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00005	1.37667	0.00947	1.01685	0.00529	1.15490	0.00655	0.30415	0.00703	-0.37631	0.00889	-1.08274	0.01336	0.00000	0.00000
IA00011	0.76947	0.00654	0.69776	0.00940	0.69459	0.01005	-0.69459	0.01226	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00014	0.24746	0.00800	1.55890	0.10712	2.79113	0.10939	-2.79113	0.18119	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00756	0.80729	0.00759	1.27780	0.01099	0.58543	0.01020	0.01157	0.01144	-0.59701	0.01400	0.00000	0.00000	n/a	n/a
IA00763	0.89985	0.00630	1.08800	0.00774	1.39531	0.00899	-0.13284	0.01057	-1.26247	0.01677	0.00000	0.00000	n/a	n/a
IA00767	1.25058	0.01035	0.43027	0.00614	0.58984	0.00722	-0.58984	0.00837	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00798	1.52355	0.00980	-0.03399	0.00440	0.94179	0.00714	0.22376	0.00604	-0.17522	0.00603	-0.99034	0.00722	0.00000	0.00000
IA00842	1.24478	0.00875	1.00188	0.00588	1.66930	0.00755	-0.19862	0.00875	-0.62902	0.01049	-0.84166	0.01177	0.00000	0.00000
IA01181	1.02205	0.00817	0.52101	0.00713	0.71232	0.00813	-0.71232	0.00995	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01182	0.73825	0.00636	-0.38973	0.00961	0.70659	0.01217	-0.70659	0.01076	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01201	1.74737	0.01366	1.16460	0.00493	0.81702	0.00575	0.25300	0.00645	-0.22510	0.00791	-0.84492	0.01182	0.00000	0.00000
IA01203	0.26682	0.00894	1.47740	0.10161	2.43030	0.10160	-2.43030	0.16611	0.00000	0.00000	n/a	n/a	n/a	n/a

Table 2.4.43 IRT Parameters for Dichotomous Items
 Mathematics Grade 7 Paper

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA01199	0.84449	0.01577	-1.09893	0.03540	0.08180	0.01914
IA00807	1.14250	0.01841	-0.18965	0.01405	0.09951	0.00698
IA00796	1.33771	0.02213	0.15545	0.01099	0.13628	0.00508
IA00909	1.00440	0.01806	-1.48569	0.03220	0.07305	0.02117
IA01003	1.33601	0.01994	-0.39622	0.01167	0.07745	0.00647
IA00920	1.07073	0.01936	-0.14988	0.01745	0.16104	0.00818
IA00955	0.67456	0.02061	0.70426	0.03236	0.25616	0.00978
IA00765	0.87531	0.02200	0.83231	0.01943	0.22711	0.00632
IA00953	0.89483	0.01469	0.05238	0.01563	0.04730	0.00669
IA00945	0.66610	0.01222	-1.04470	0.04015	0.04979	0.01827
IA00768	0.72918	0.01111	-1.73946	0.02051	0.05000	0.00000
IA00844	1.19764	0.02733	1.03798	0.01305	0.20709	0.00404
IA00883	0.47589	0.00799	-1.52345	0.02514	0.05000	0.00000
IA00907	1.12265	0.02239	-0.34527	0.02113	0.25905	0.00981
IA01190	0.61884	0.01450	-0.87651	0.05809	0.10140	0.02393
IA01015	1.11560	0.01731	-0.29215	0.01414	0.07208	0.00716
IA01235	1.05467	0.02124	-0.25090	0.02173	0.24466	0.00969
IA00808	0.70316	0.01545	0.22278	0.02652	0.09846	0.01008
IA01212	0.90493	0.01161	-1.38968	0.01309	0.00000	0.00000
IA01220	0.83990	0.00939	-0.62124	0.00934	0.00000	0.00000
IA00847	0.90765	0.00955	-0.19670	0.00801	0.00000	0.00000
IA00797	0.68228	0.00861	-0.98147	0.01300	0.00000	0.00000
IA00917	1.12454	0.01134	0.36591	0.00714	0.00000	0.00000
IA00918	1.32004	0.01349	0.60761	0.00682	0.00000	0.00000

Table 2.4.44 IRT Parameters for Polytomous Items
Mathematics Grade 7 Paper

Parameters and Measures of Standard Error																
Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00005	1.28150	0.00774	1.12318	0.00500	1.20247	0.00614	0.33564	0.00662	-0.36820	0.00820	-1.16991	0.01238	0.00000	0.00000	n/a	n/a
IA00011	0.78935	0.00571	0.51039	0.00780	0.68479	0.00872	-0.68479	0.01001	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00014	0.44187	0.00312	0.73480	0.01298	1.26737	0.01435	-1.26737	0.01707	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00756	0.78675	0.00631	1.27322	0.00956	0.59323	0.00913	0.00905	0.01010	-0.60228	0.01210	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00763	0.89083	0.00526	0.78307	0.00657	1.37927	0.00821	-0.13748	0.00865	-1.24179	0.01214	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00798	1.59304	0.00907	-0.11595	0.00375	0.92700	0.00617	0.22210	0.00527	-0.17051	0.00525	-0.97858	0.00605	0.00000	0.00000	n/a	n/a
IA00842	1.19152	0.00735	1.00427	0.00532	1.73532	0.00693	-0.22404	0.00787	-0.65990	0.00920	-0.85140	0.01005	0.00000	0.00000	n/a	n/a
IA01181	1.01314	0.00709	0.45099	0.00628	0.67086	0.00727	-0.67086	0.00844	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01201	1.77197	0.01208	1.22277	0.00428	0.84489	0.00515	0.28085	0.00571	-0.24905	0.00694	-0.87668	0.00995	0.00000	0.00000	n/a	n/a
IA01203	0.64673	0.00429	0.33763	0.00899	1.08977	0.01066	-1.08977	0.01197	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a

Table 2.4.45 IRT Parameters for Dichotomous Items
 Mathematics Grade 8 Online

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00858	1.16206	0.01670	-1.18290	0.02124	0.10511	0.01454
IA00760	0.74653	0.00907	-1.76719	0.01668	0.05000	0.00000
IA01193	0.98150	0.01528	-0.80896	0.02380	0.15695	0.01287
IA00792	1.35260	0.03280	0.43628	0.01619	0.57245	0.00430
IA01194	0.97126	0.01685	-0.65886	0.02587	0.25812	0.01216
IA00859	0.88072	0.01971	0.72322	0.01746	0.30303	0.00568
IA00904	1.11046	0.02201	0.80577	0.01230	0.28573	0.00418
IA00903	0.88778	0.01503	-0.88198	0.03058	0.17129	0.01560
IA00988	0.48187	0.01312	-0.19297	0.06396	0.11002	0.02027
IA00914	0.63693	0.01228	-0.23269	0.03320	0.08590	0.01312
IA00905	0.79781	0.01243	0.16937	0.01590	0.06867	0.00674
IA00986	1.66378	0.03253	1.03596	0.00850	0.27733	0.00277
IA01207	0.82400	0.01163	-0.40366	0.01897	0.04718	0.00906
IA00877	0.88824	0.00981	-1.66678	0.01304	0.00000	0.00000
IA00774	0.96633	0.01453	-0.87797	0.02375	0.11762	0.01333
IA00823	1.34842	0.01980	-0.67395	0.01483	0.22833	0.00869
IA00759	1.11706	0.01561	-0.46855	0.01504	0.14477	0.00808
IA01038	0.86214	0.01733	1.29380	0.01266	0.10745	0.00355
IA00915	0.51136	0.00571	0.50806	0.01070	0.00000	0.00000
IA00860	1.23896	0.00967	0.17936	0.00491	0.00000	0.00000
IA01034	0.81654	0.00708	-0.22745	0.00669	0.00000	0.00000
IA00980	0.91475	0.00761	0.18872	0.00611	0.00000	0.00000
IA01044	0.99220	0.00844	-0.67337	0.00655	0.00000	0.00000
IA00866	1.40637	0.01093	0.26548	0.00456	0.00000	0.00000

Table 2.4.46 IRT Parameters for Polytomous Items
Mathematics Grade 8 Online

Item ID	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)
IA00008	0.76523	0.00408	-0.74445	0.00625	0.95829	0.00909	-0.95829	0.00689	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00009	0.66999	0.00362	-0.47169	0.00697	0.97939	0.00944	-0.97939	0.00792	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00010	0.81539	0.00515	-1.54097	0.00740	0.98452	0.01324	-0.98452	0.00692	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00012	0.86936	0.02286	-0.16309	0.02681	0.96790	0.02793	-0.96790	0.04624	0.00000	0.00000	n/a	n/a	n/a	n/a
IA00013	0.89129	0.00361	-0.24981	0.00474	1.57818	0.00883	0.45373	0.00632	-0.49326	0.00601	-1.53865	0.00732	0.00000	0.00000
IA00015	0.82204	0.00320	-0.53232	0.00518	2.11854	0.01330	0.71732	0.00755	-0.66326	0.00640	-2.17260	0.00858	0.00000	0.00000
IA00822	1.70789	0.00770	0.06528	0.00278	1.22735	0.00493	-0.01296	0.00382	-0.41471	0.00395	-0.79968	0.00439	0.00000	0.00000
IA00991	1.42617	0.00650	0.50077	0.00331	0.82977	0.00439	0.38487	0.00426	-0.23783	0.00466	-0.97681	0.00616	0.00000	0.00000
IA01200	1.05308	0.00545	0.19181	0.00455	0.79736	0.00565	-0.79736	0.00613	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01211	1.12308	0.00549	0.58207	0.00424	0.80715	0.00513	0.02193	0.00527	-0.82908	0.00672	0.00000	0.00000	n/a	n/a
IA01216	0.90692	0.00431	1.10315	0.00524	1.51454	0.00613	-0.36763	0.00767	-1.14691	0.01066	0.00000	0.00000	n/a	n/a
IA01217	0.87685	0.03602	1.04355	0.05825	0.60690	0.03932	-0.60690	0.07212	0.00000	0.00000	n/a	n/a	n/a	n/a

Table 2.4.47 IRT Parameters for Dichotomous Items
 Mathematics Grade 8 Paper

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
IA00858	1.31449	0.06760	-1.07922	0.04494	0.14766	0.02545
IA00760	0.85516	0.04989	-1.55110	0.10173	0.16109	0.05015
IA01193	1.13304	0.06965	-0.51455	0.05272	0.23968	0.02249
IA00792	1.02157	0.11050	0.31140	0.07872	0.51969	0.01735
IA01194	0.98168	0.06420	-0.78448	0.07472	0.25960	0.03129
IA00859	0.98272	0.08577	0.73095	0.05410	0.23402	0.01411
IA00904	1.09386	0.09920	0.83379	0.05207	0.25394	0.01249
IA00903	0.88629	0.05761	-0.82555	0.08290	0.21762	0.03455
IA00988	0.49757	0.05414	0.27420	0.14365	0.18662	0.03991
IA00914	0.71178	0.04208	-0.43653	0.06962	0.08595	0.02619
IA00905	0.81292	0.05008	0.17122	0.04872	0.08041	0.01659
IA00986	1.49019	0.14008	0.92414	0.04362	0.27420	0.00994
IA01207	0.94584	0.04921	-0.30101	0.04317	0.07715	0.01727
IA00877	0.87194	0.04793	-1.43193	0.08629	0.13238	0.04271
IA00774	1.19919	0.06940	-0.64143	0.04875	0.21488	0.02253
IA00823	1.06911	0.05952	-0.74032	0.05351	0.16192	0.02506
IA00759	1.09493	0.05935	-0.35829	0.04204	0.12837	0.01799
IA01038	0.80518	0.07604	1.31552	0.07135	0.10466	0.01145
IA00915	0.56243	0.02388	0.53457	0.05155	0.00000	0.00000
IA00860	1.29059	0.04326	0.30707	0.02412	0.00000	0.00000
IA01034	1.06422	0.03363	-0.39275	0.02258	0.00000	0.00000
IA00980	0.88535	0.03001	0.07655	0.02904	0.00000	0.00000
IA01044	1.10492	0.03510	-0.82234	0.02172	0.00000	0.00000
IA00866	1.18320	0.03994	0.33998	0.02600	0.00000	0.00000

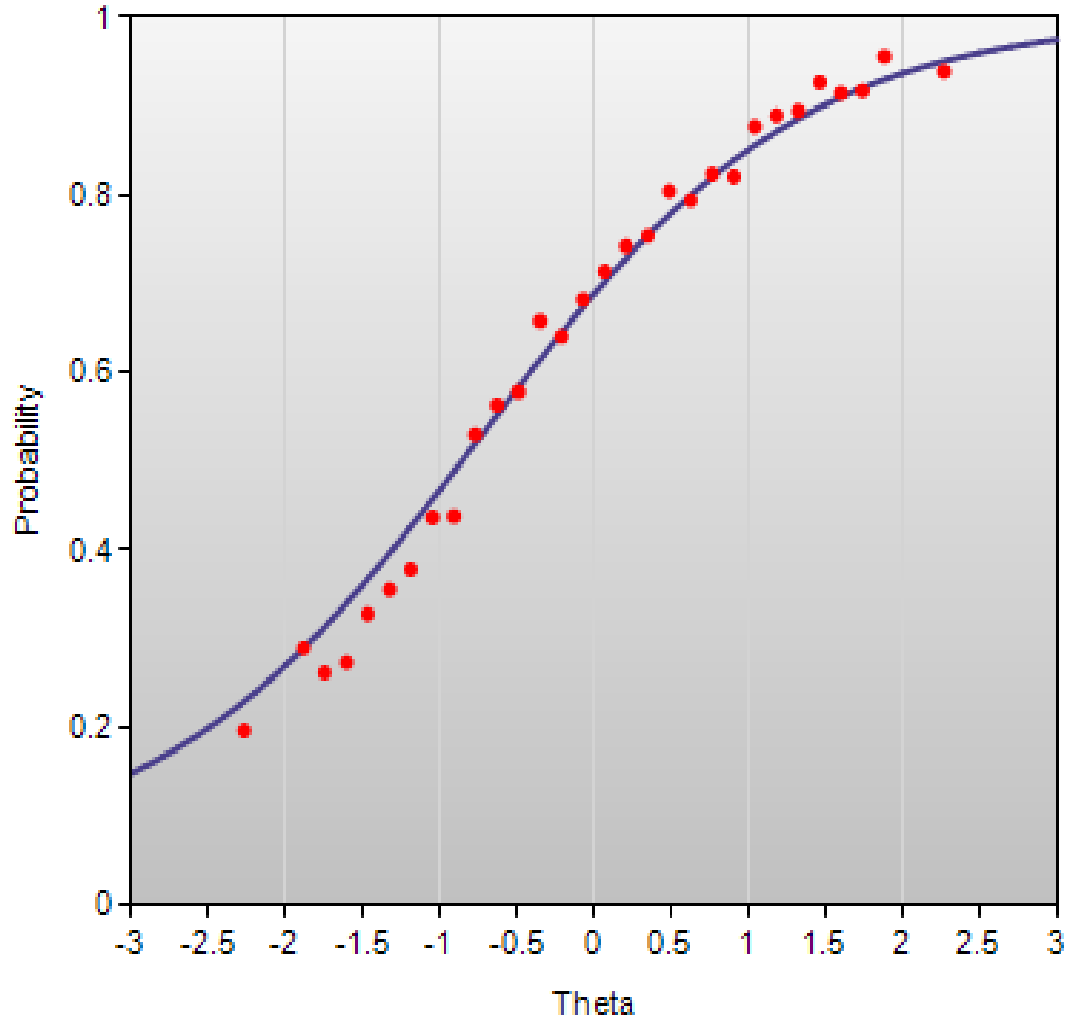
Table 2.4.48 IRT Parameters for Polytomous Items
Mathematics Grade 8 Paper

Item ID	Parameters and Measures of Standard Error															
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)	d3	SE(d3)	d4	SE(d4)	d5	SE(d5)
IA00008	0.67676	0.01413	-0.97796	0.02716	1.02729	0.03611	-1.02729	0.03197	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00012	0.62608	0.01264	-0.09811	0.02939	1.30697	0.03445	-1.30697	0.04188	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA00013	0.72308	0.01169	-0.18129	0.02334	1.93909	0.03555	0.54253	0.02877	-0.66140	0.03200	-1.82022	0.04454	0.00000	0.00000	n/a	n/a
IA00015	0.80492	0.01261	-0.42694	0.02114	2.05080	0.03773	0.68883	0.02707	-0.57842	0.02811	-2.16120	0.04478	0.00000	0.00000	n/a	n/a
IA00822	1.71697	0.03284	0.02604	0.01169	1.21841	0.01671	-0.04088	0.01714	-0.40657	0.01870	-0.77096	0.02163	0.00000	0.00000	n/a	n/a
IA00991	1.43511	0.02951	0.48040	0.01541	0.81509	0.01801	0.33219	0.01916	-0.25620	0.02281	-0.89108	0.03109	0.00000	0.00000	n/a	n/a
IA01200	0.99505	0.02246	0.35497	0.02151	0.82020	0.02308	-0.82020	0.03306	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a
IA01211	1.27160	0.02671	0.32635	0.01687	0.76377	0.01937	-0.02510	0.02170	-0.73868	0.02809	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01216	0.74849	0.01585	1.30318	0.02771	1.72949	0.02859	-0.37978	0.04475	-1.34971	0.06912	0.00000	0.00000	n/a	n/a	n/a	n/a
IA01217	1.34678	0.03702	0.67969	0.02165	0.36528	0.02116	-0.36528	0.02722	0.00000	0.00000	n/a	n/a	n/a	n/a	n/a	n/a

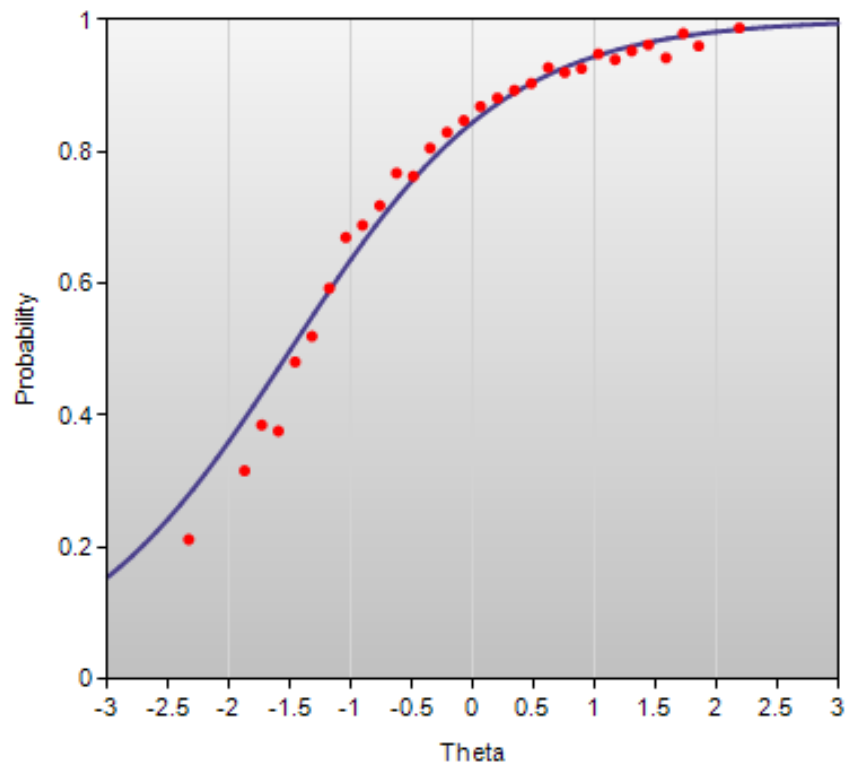
Section 2.5 Fit Plots of Watchlist Items

2.5.1 Fit Plots of Watchlist Items in Online Tests

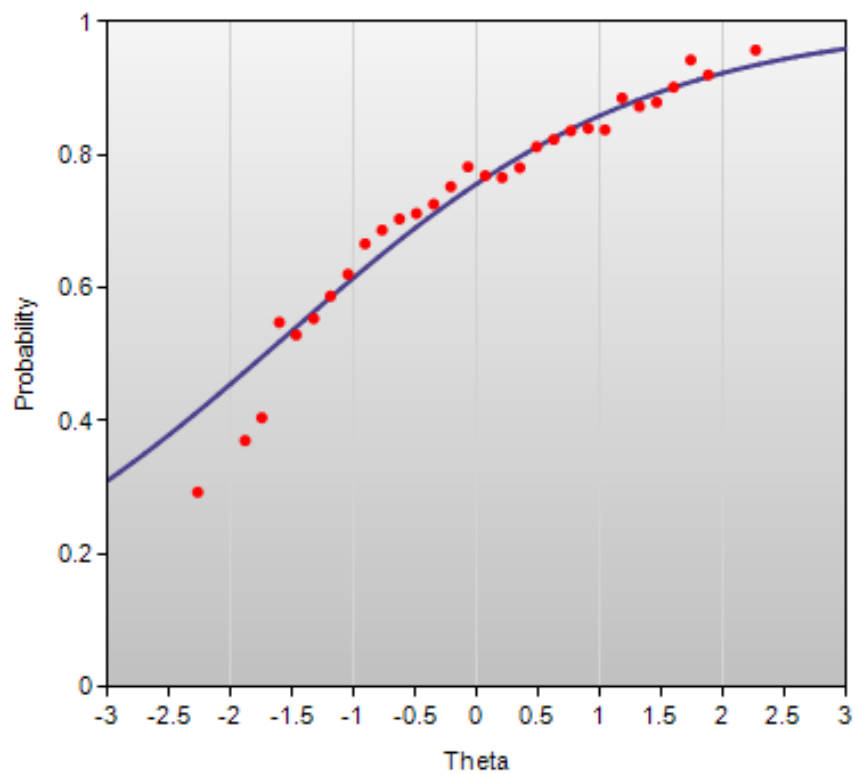
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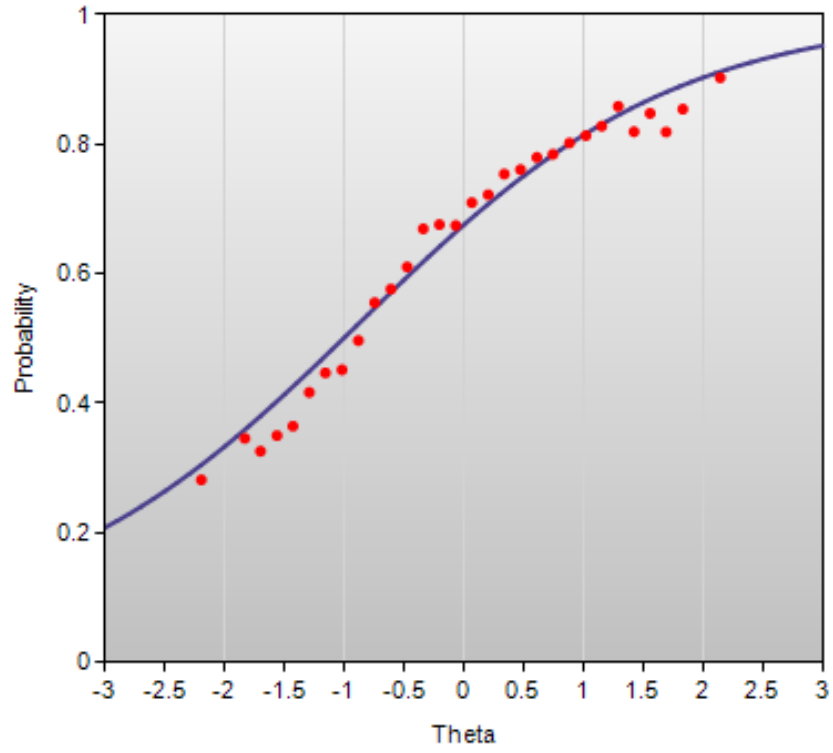
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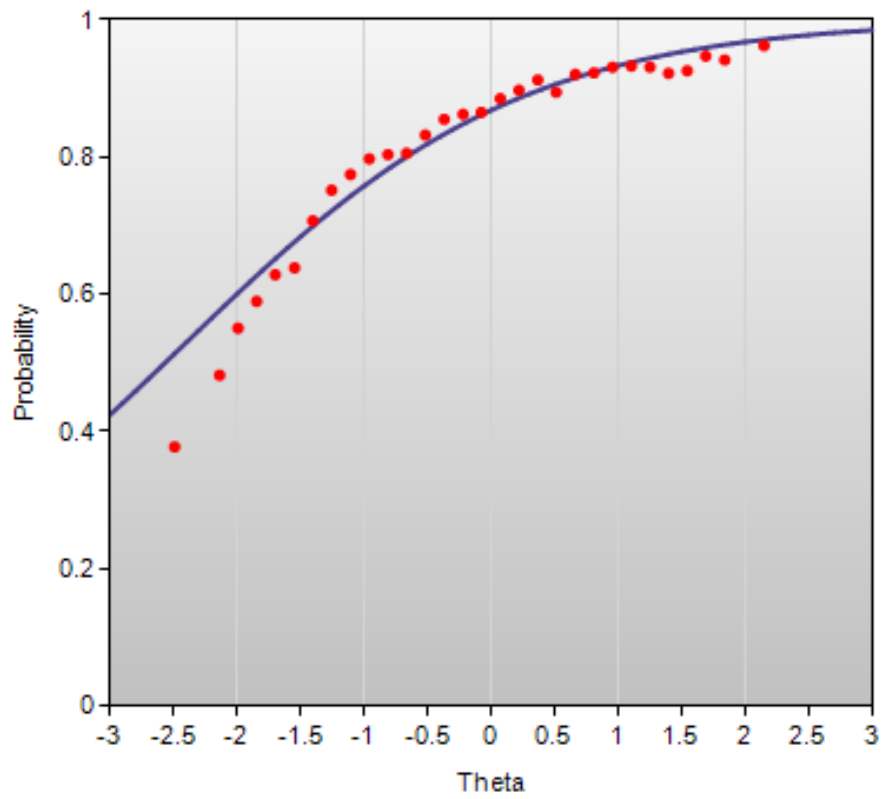
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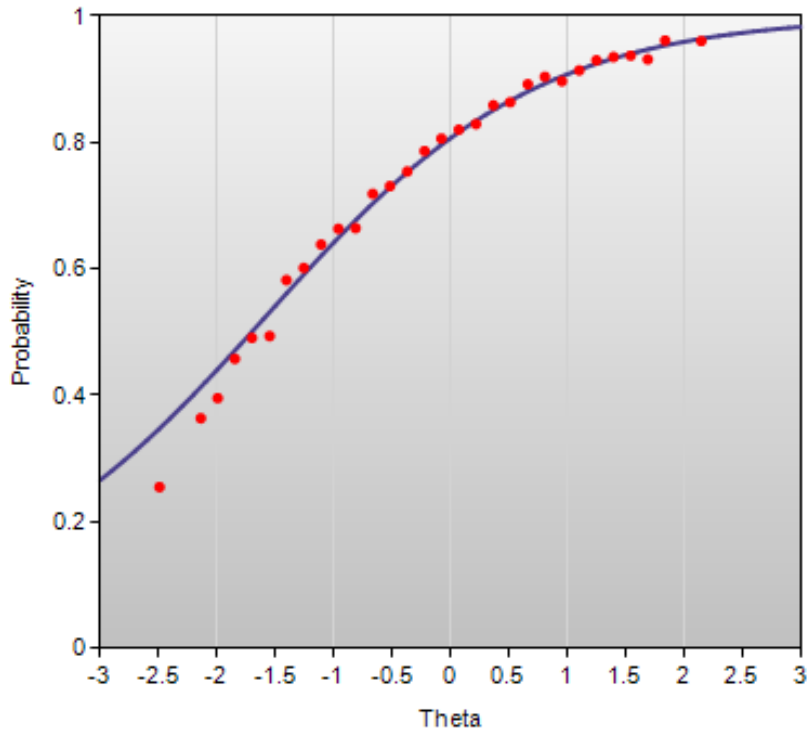
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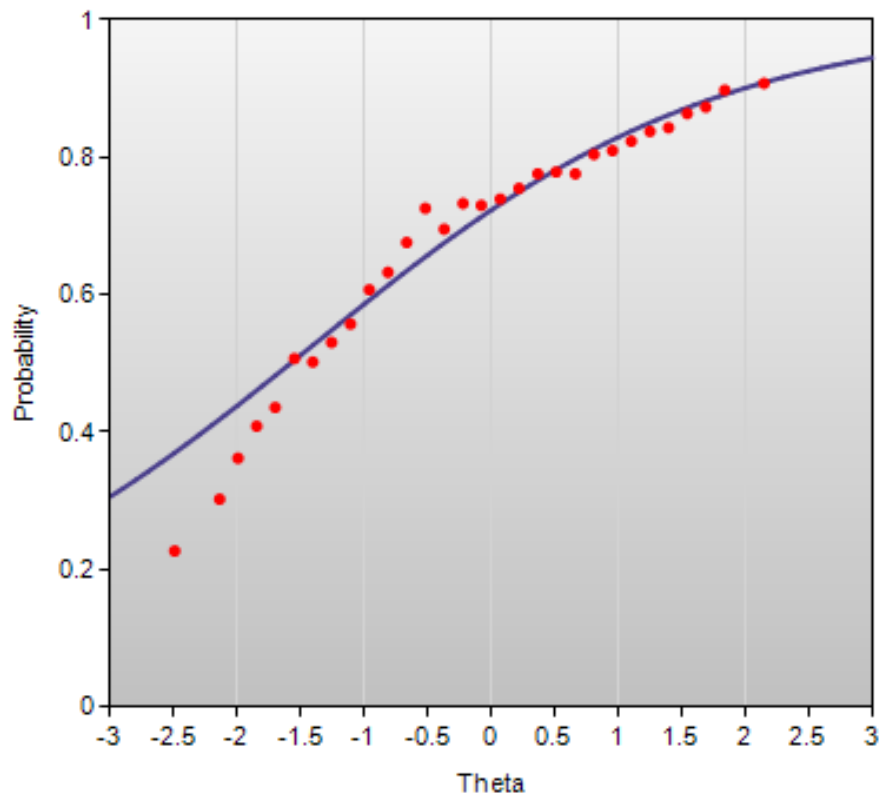
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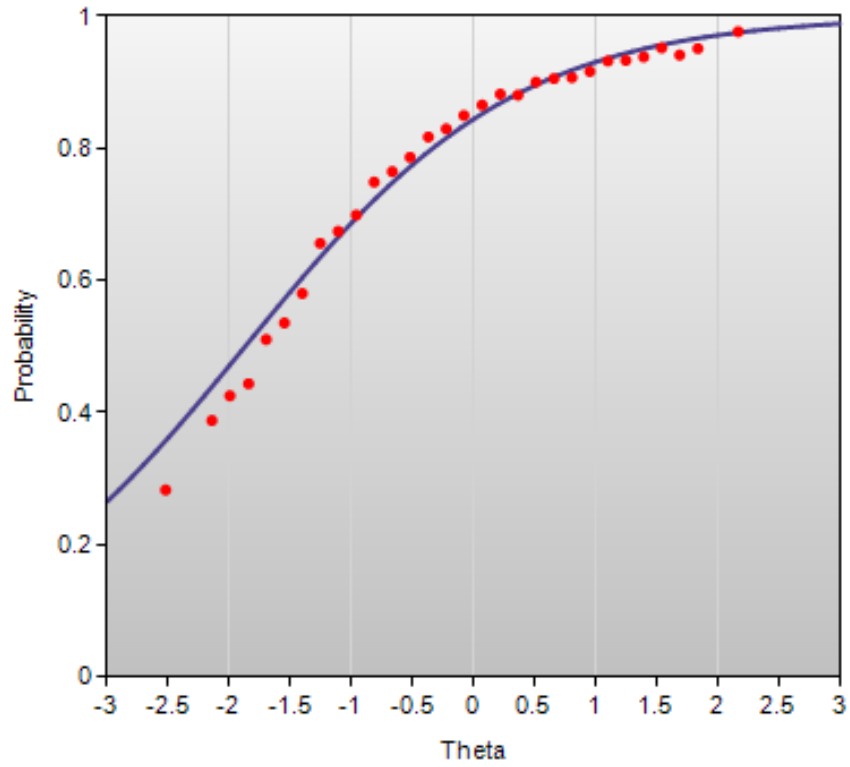
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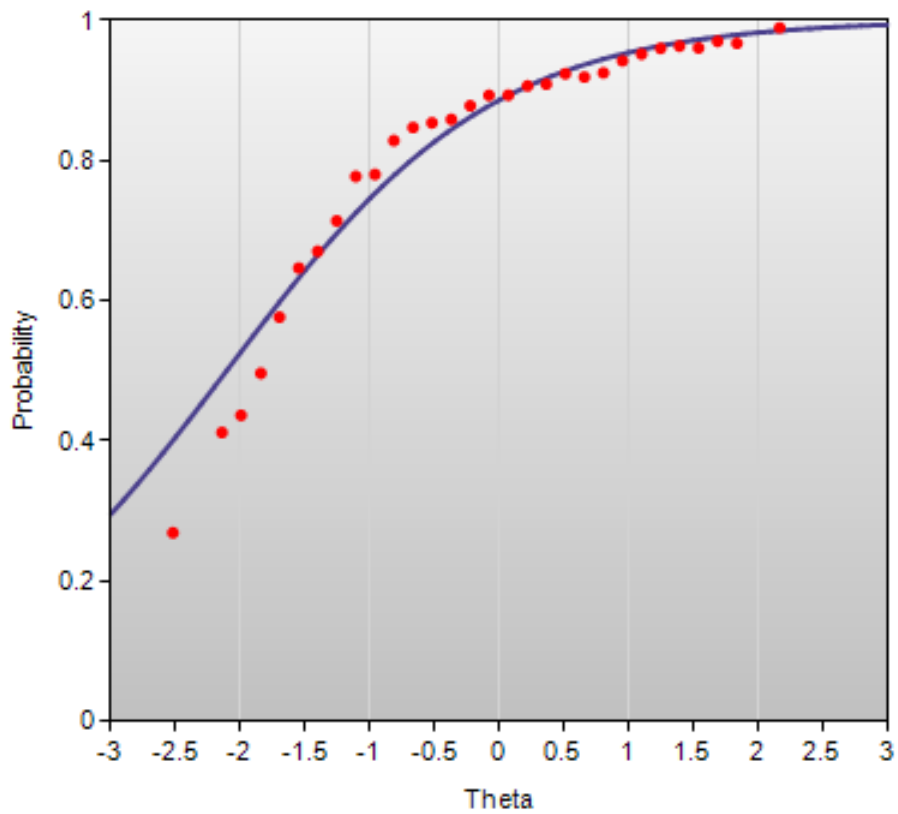
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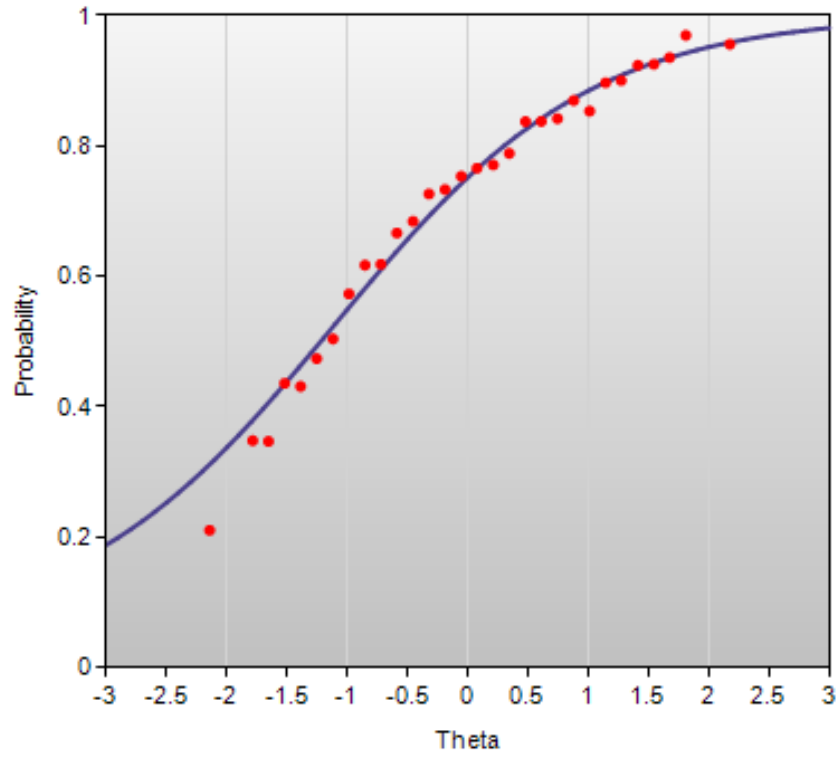
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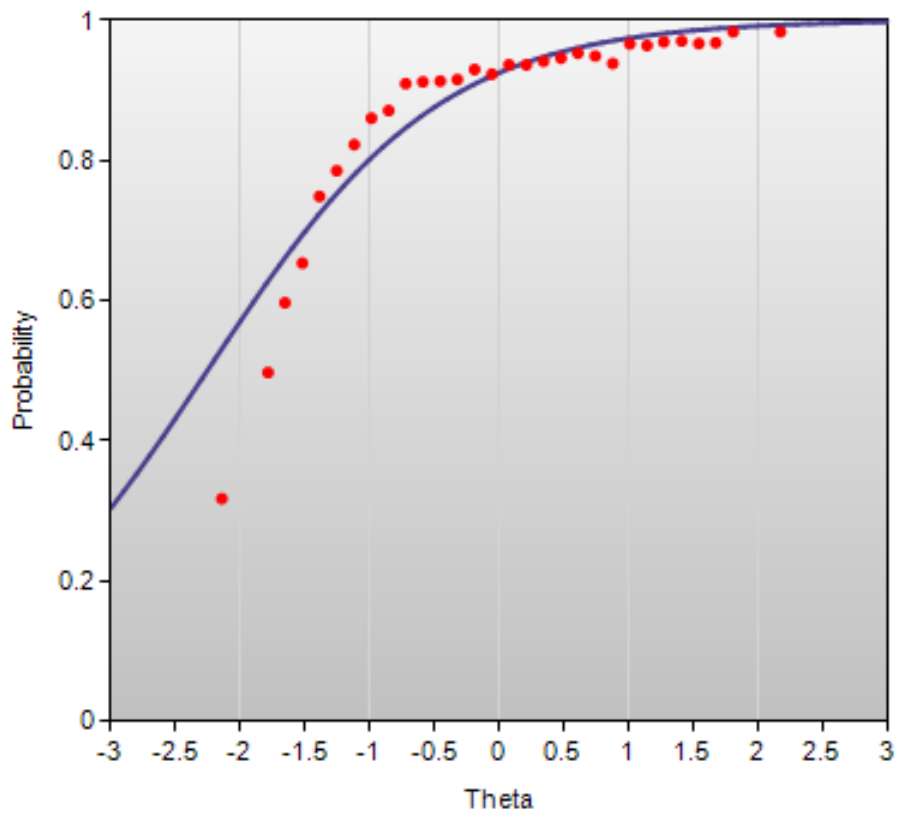
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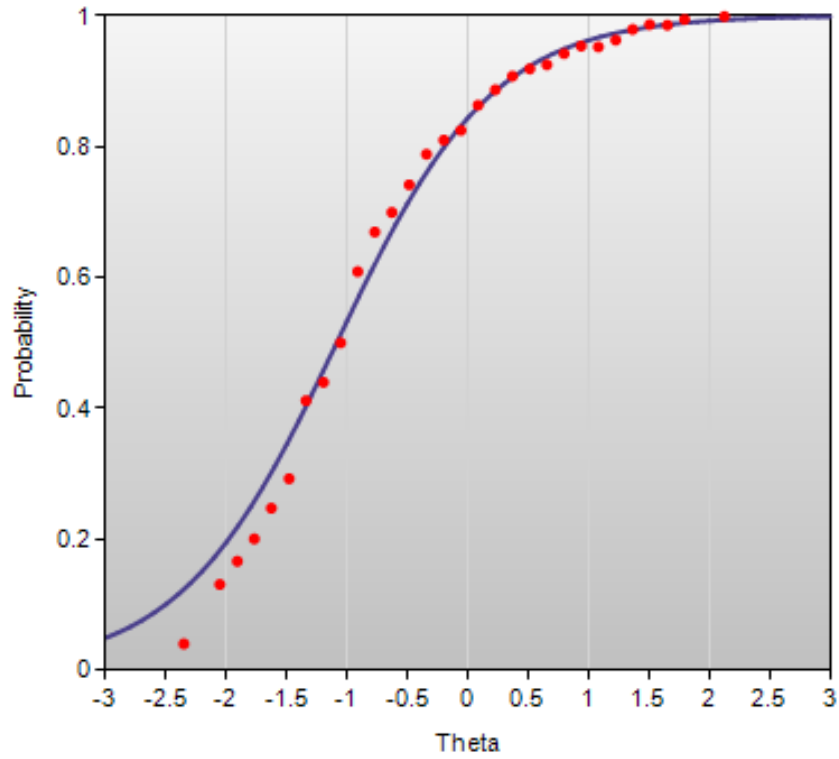
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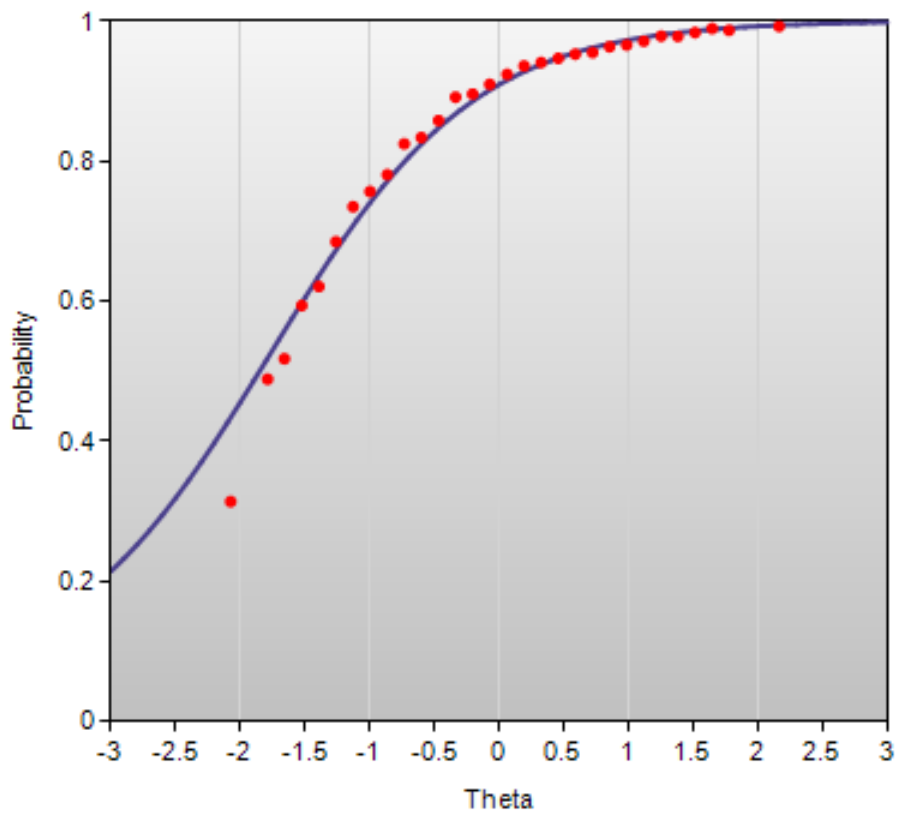
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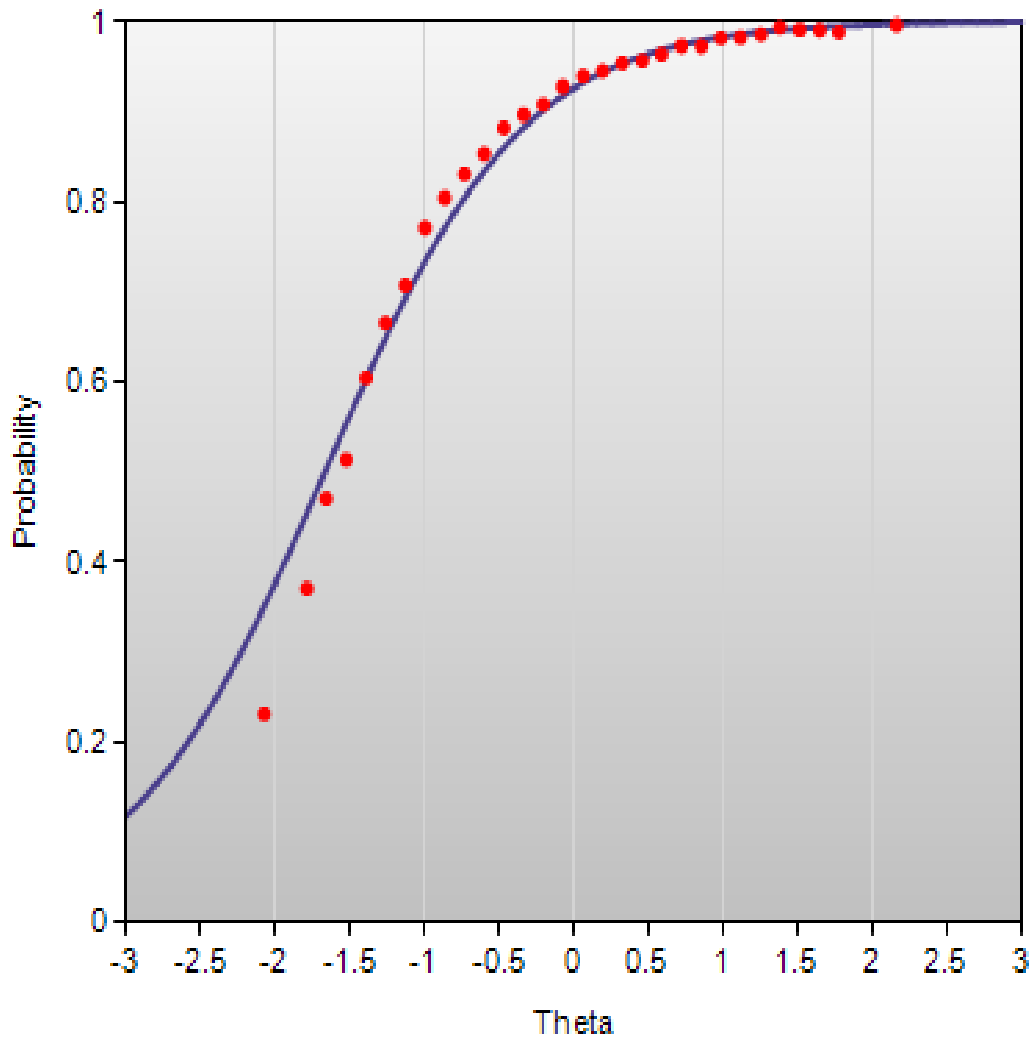
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Mathematics Grade 8: IA00760

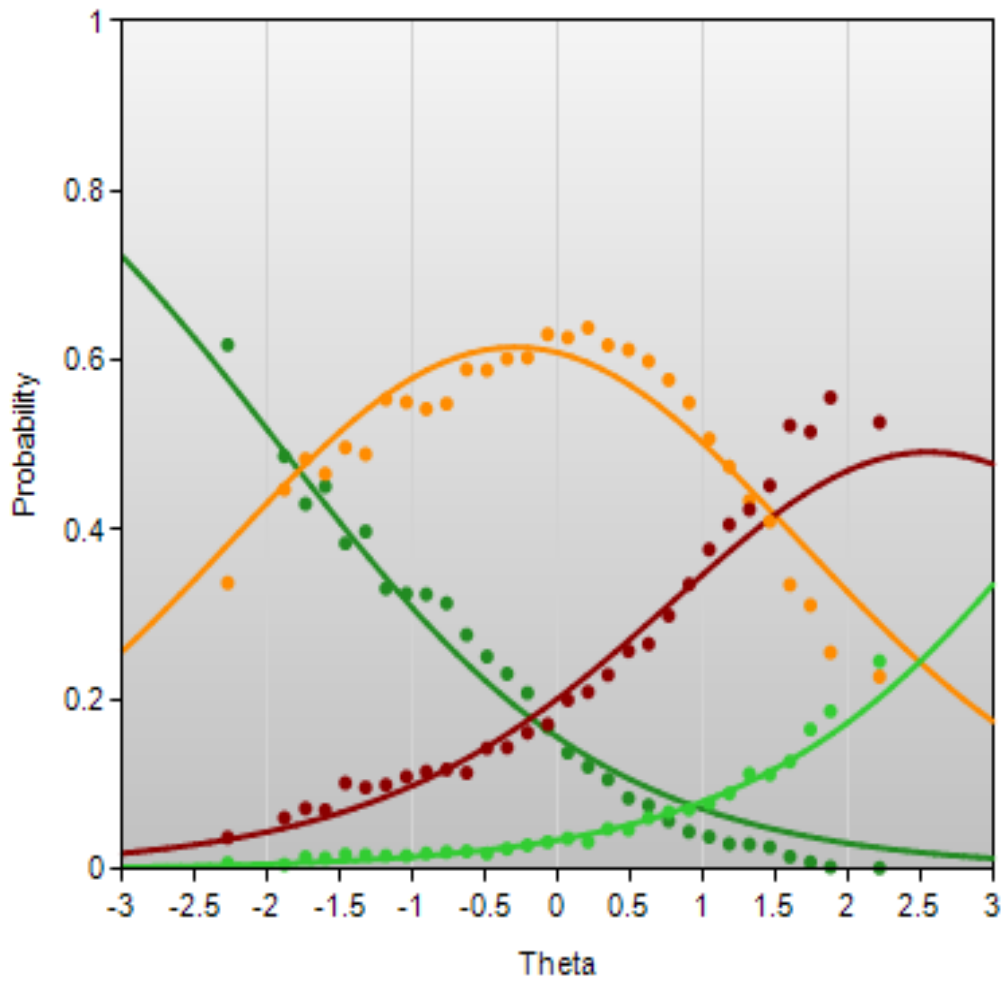


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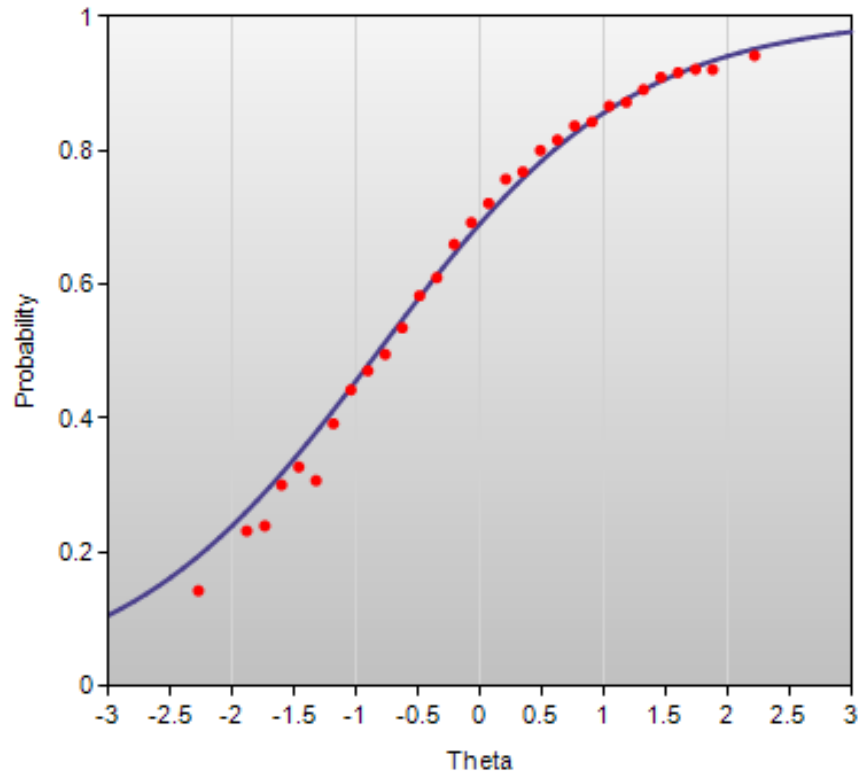


2.5.2 Fit Plots of Watchlist Items in Paper Tests

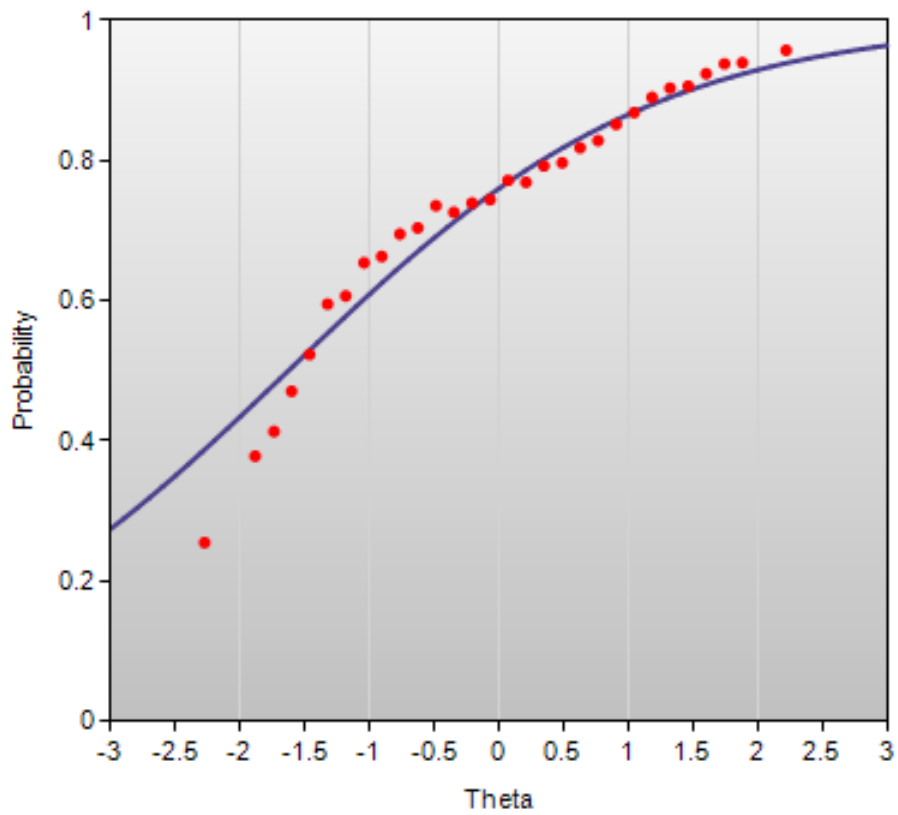
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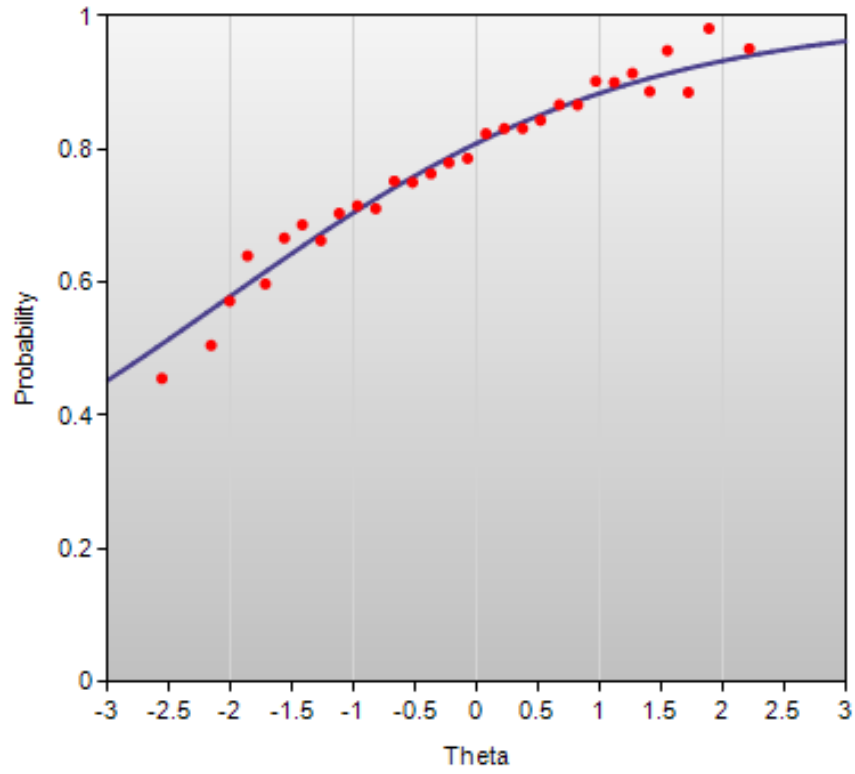
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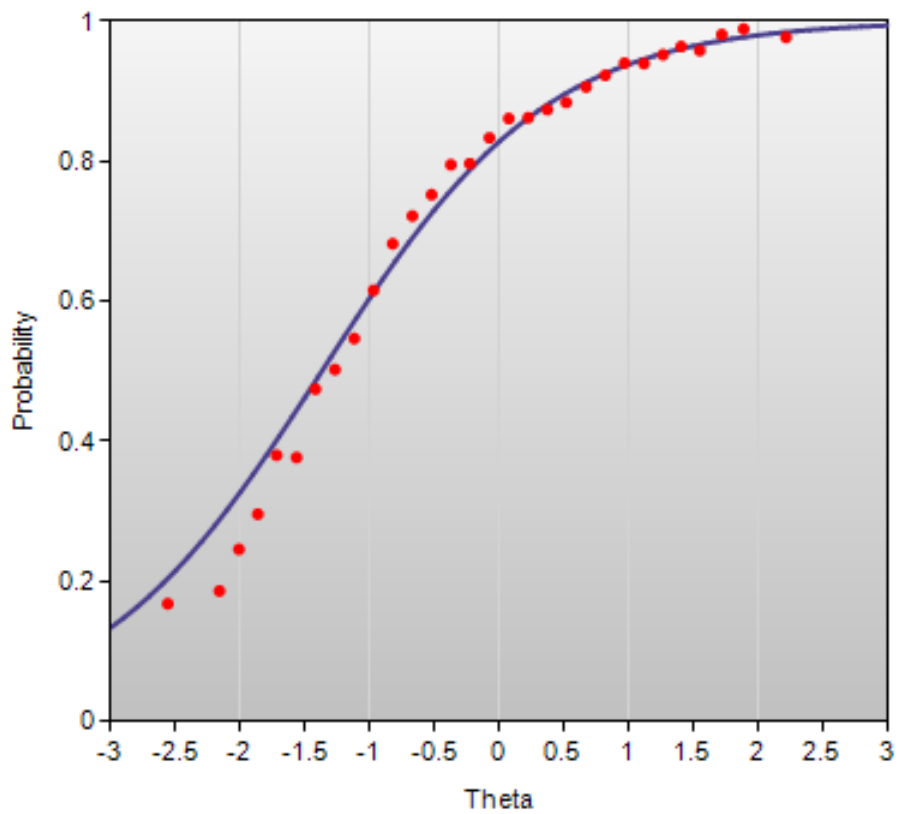
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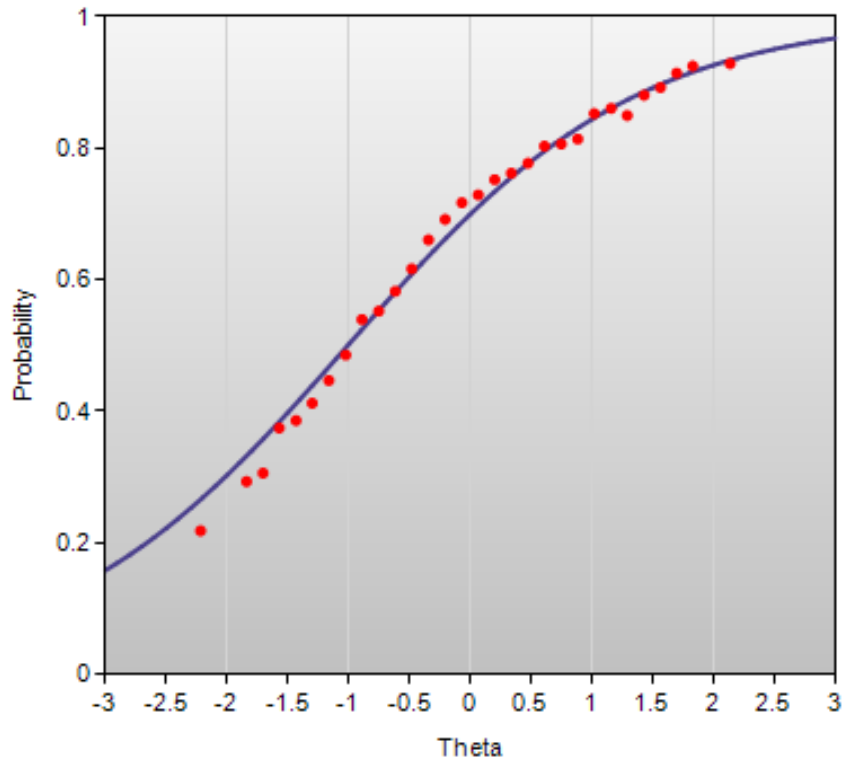
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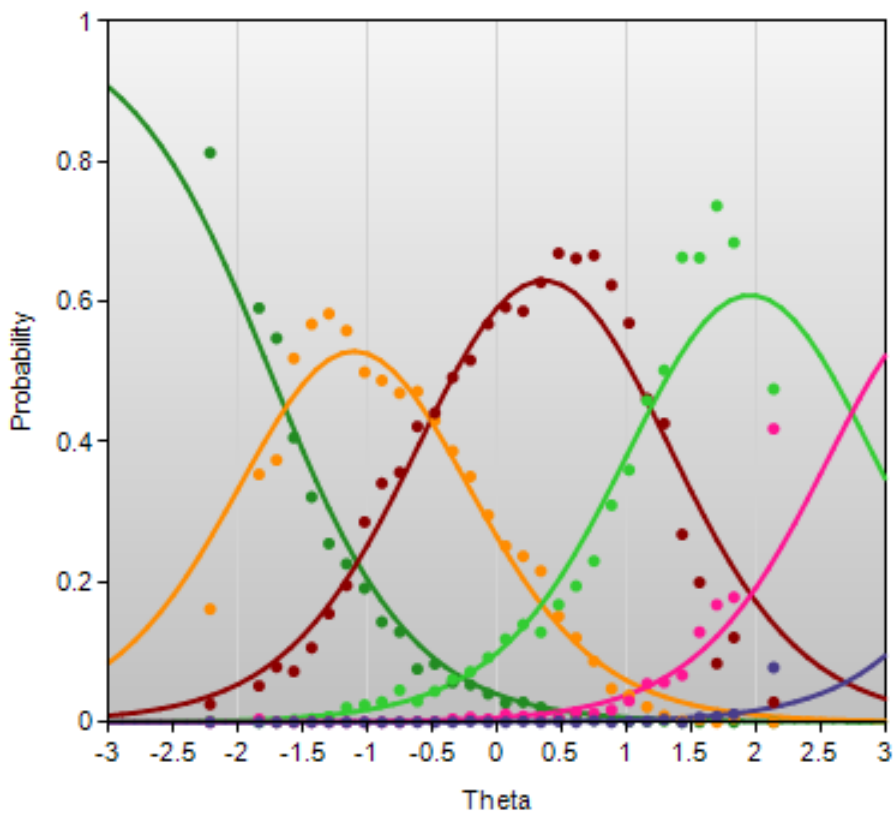
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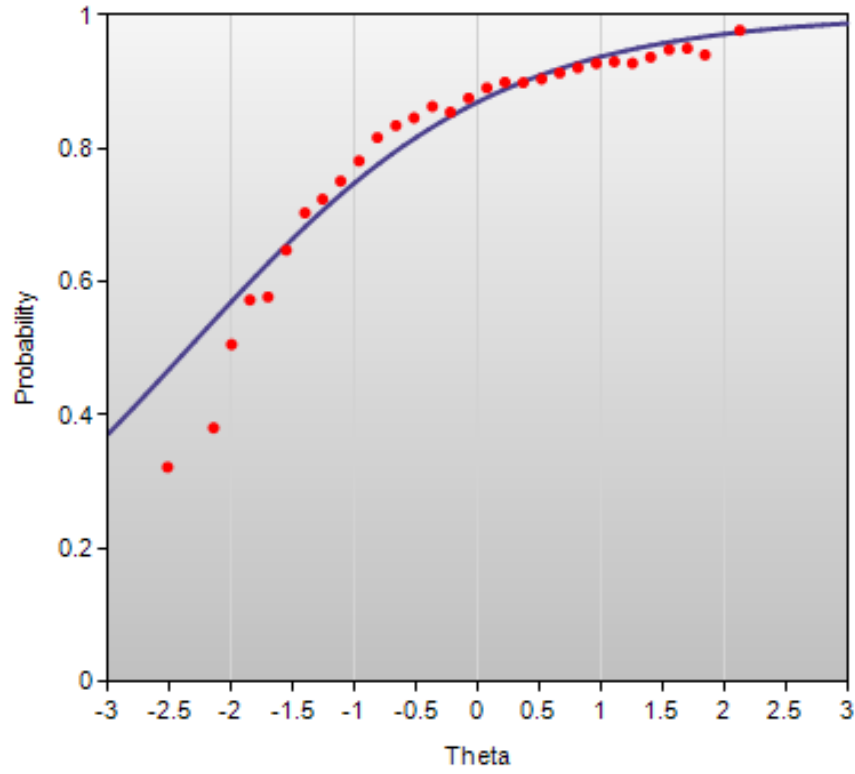
English Language Arts Grade 6: IA00347



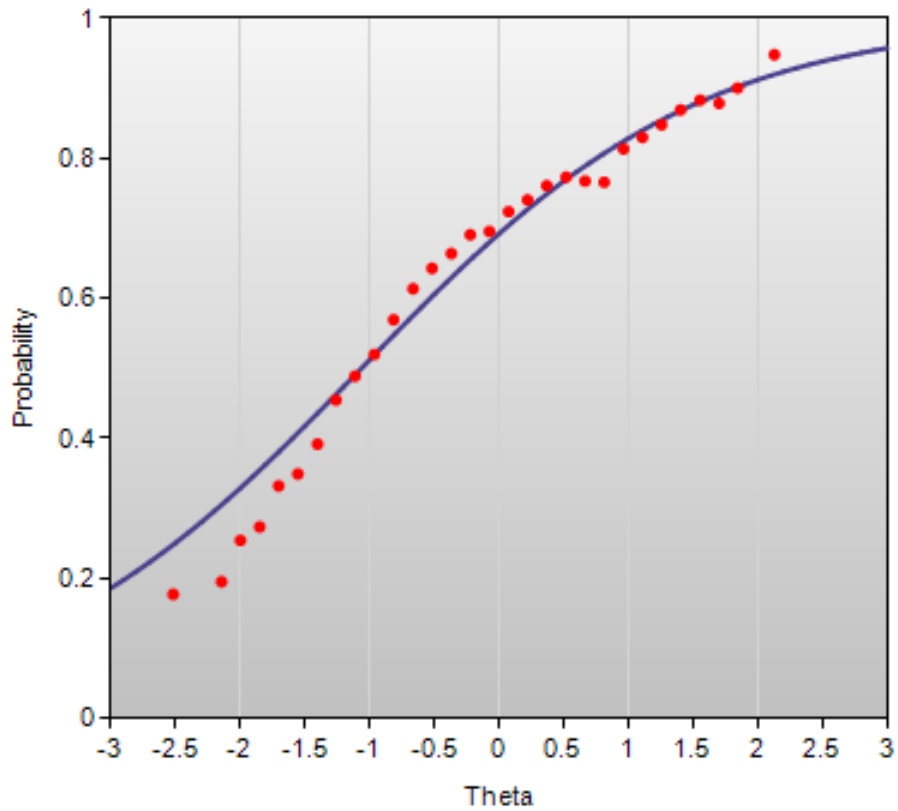
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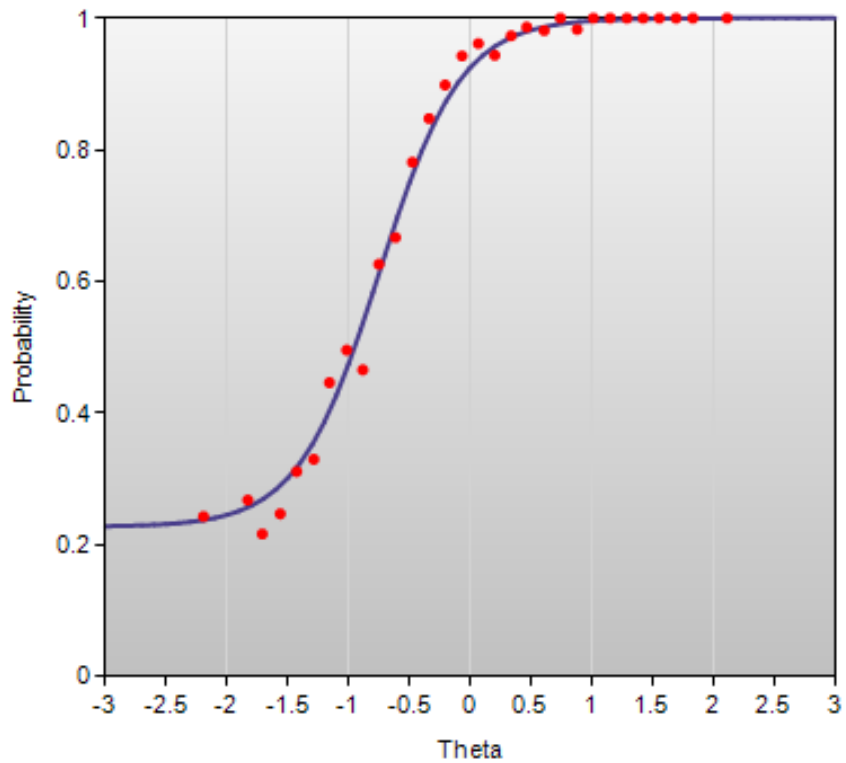
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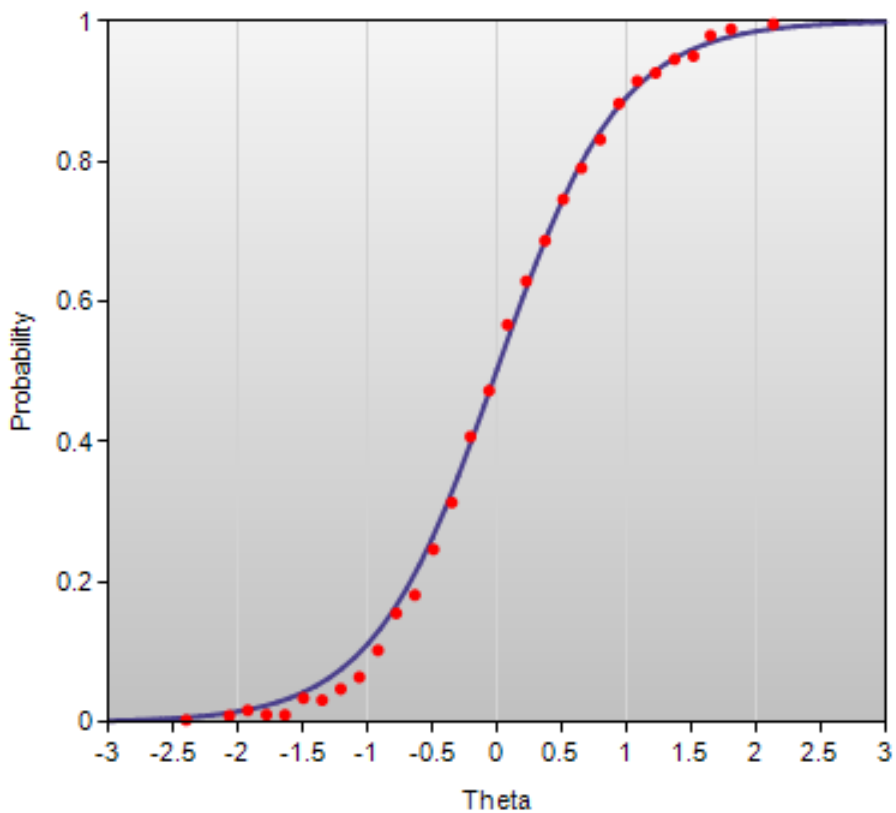
English Language Arts Grade 7: IA00077



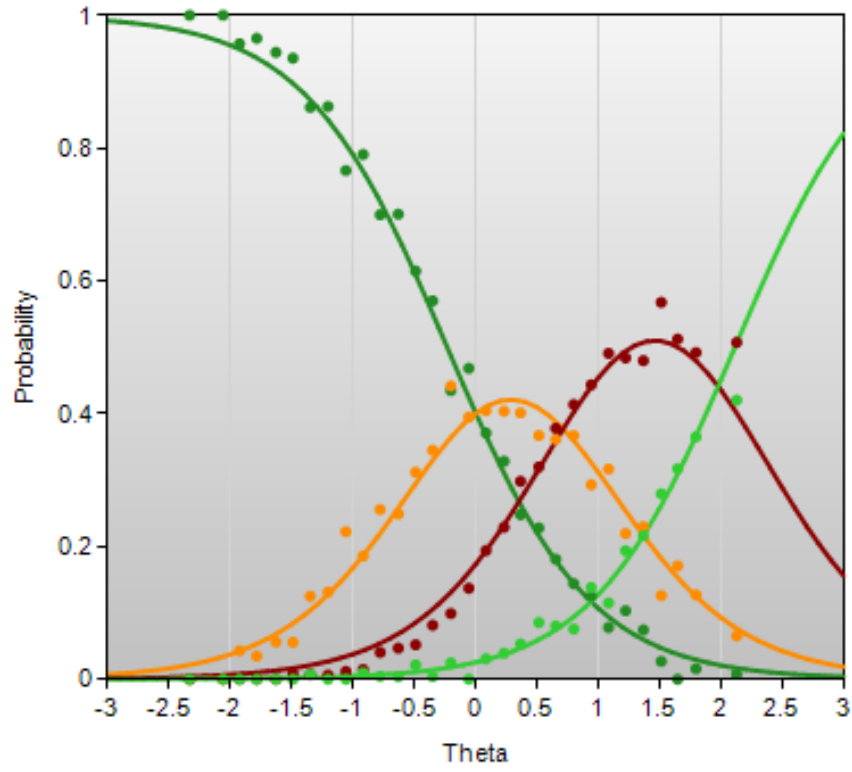
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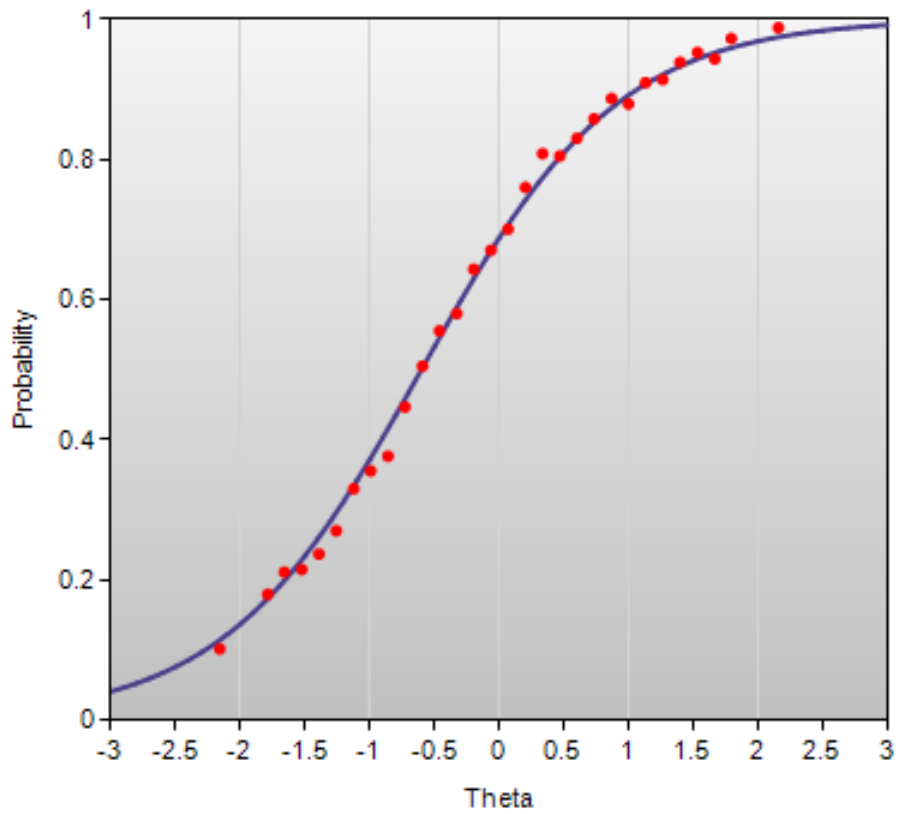
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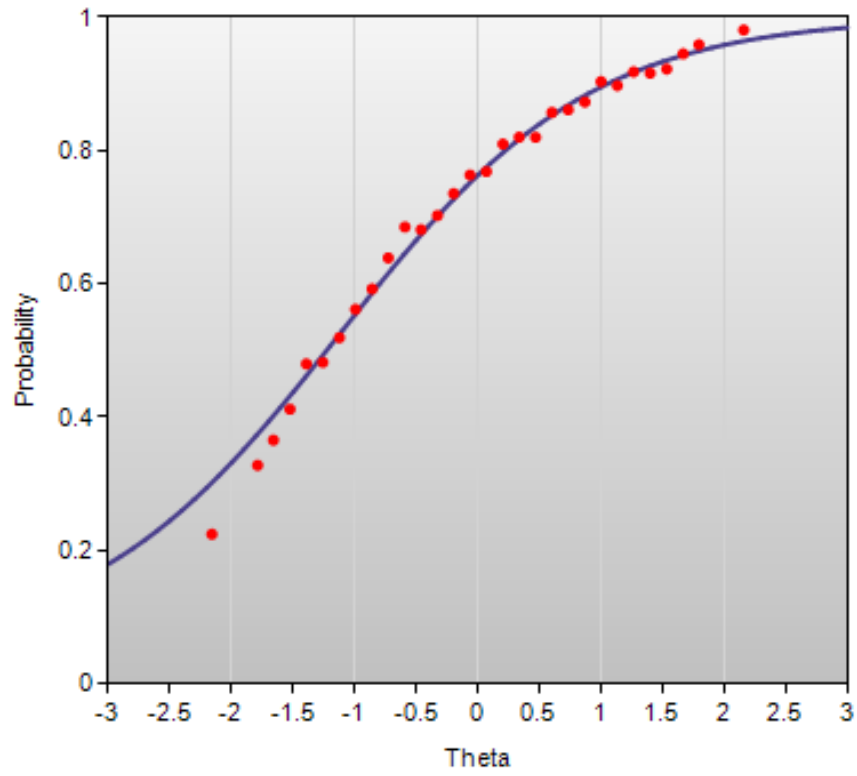
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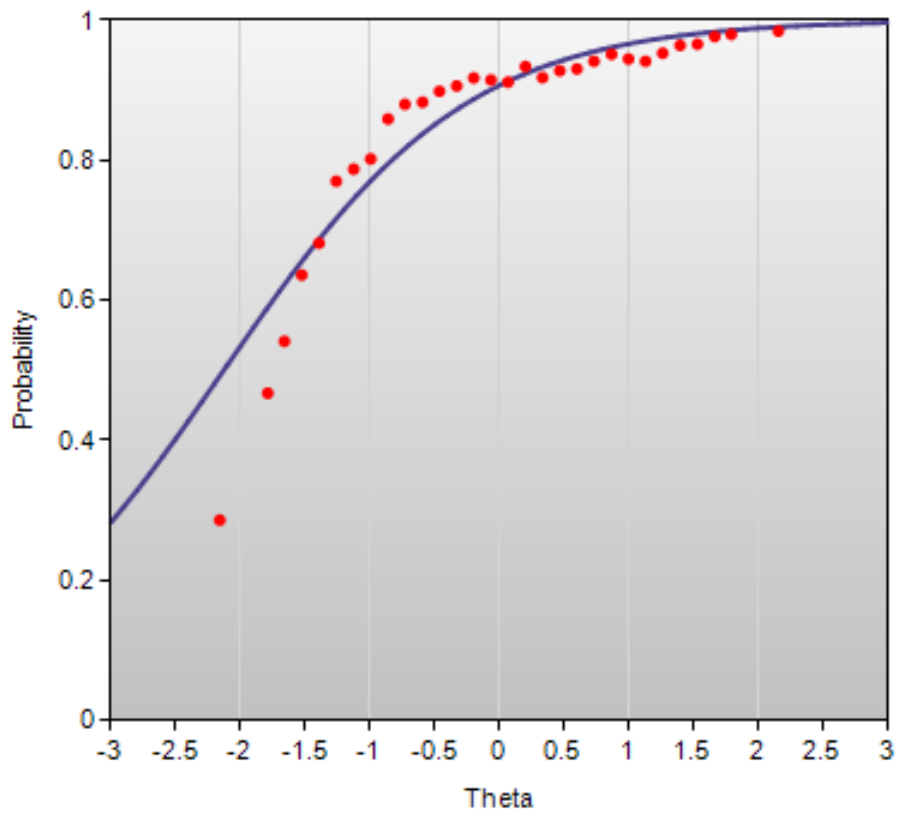
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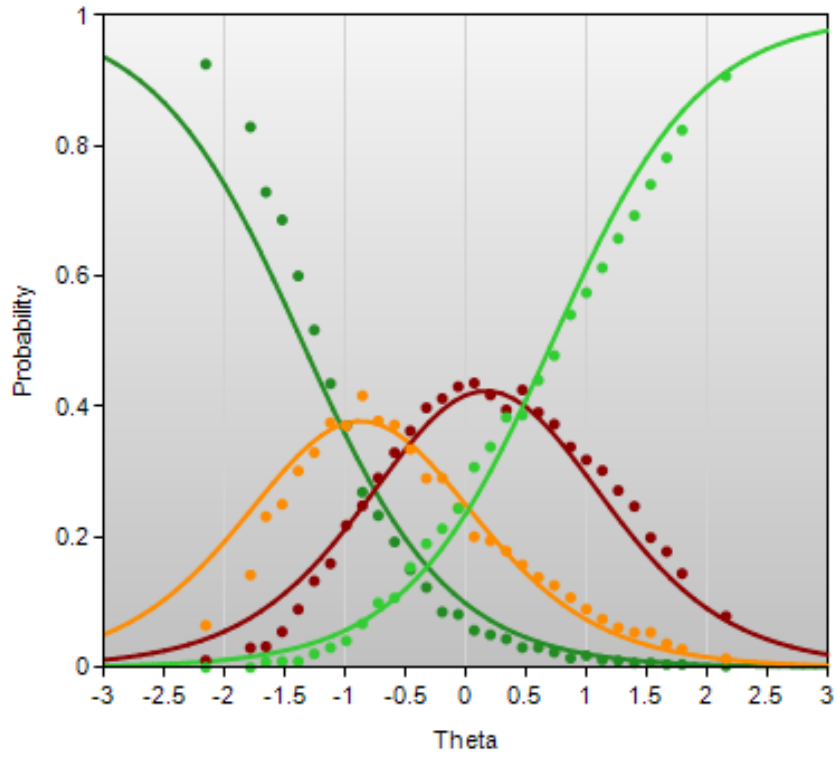
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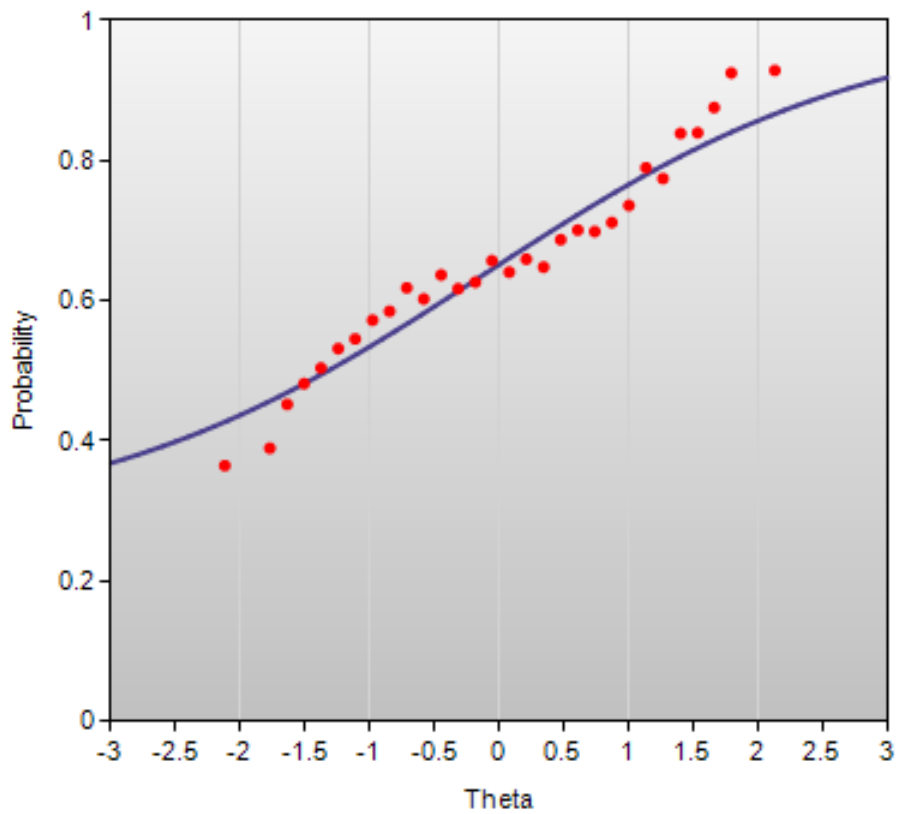
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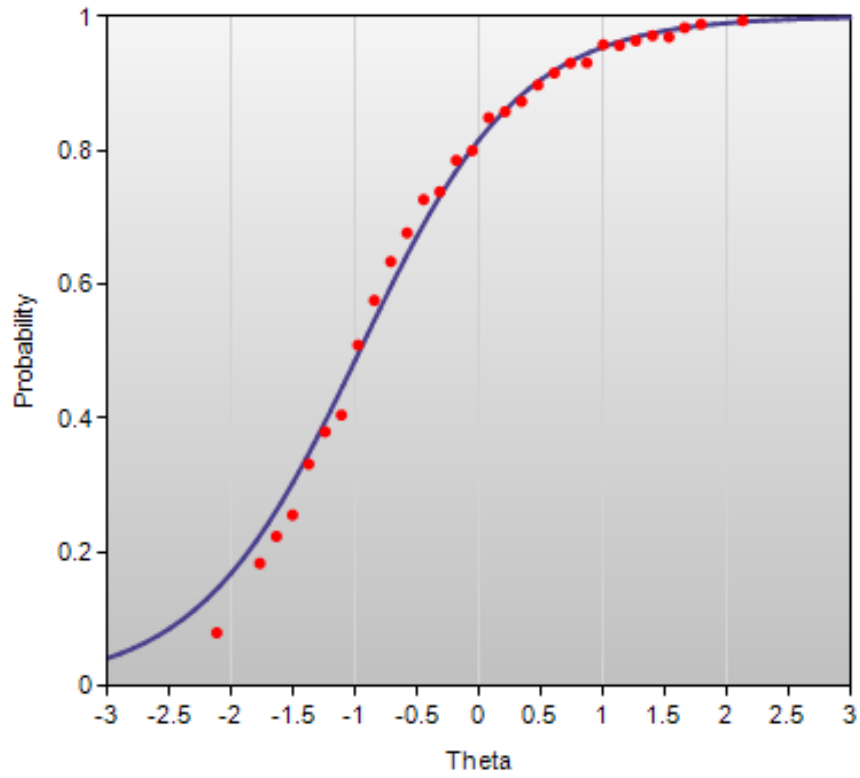
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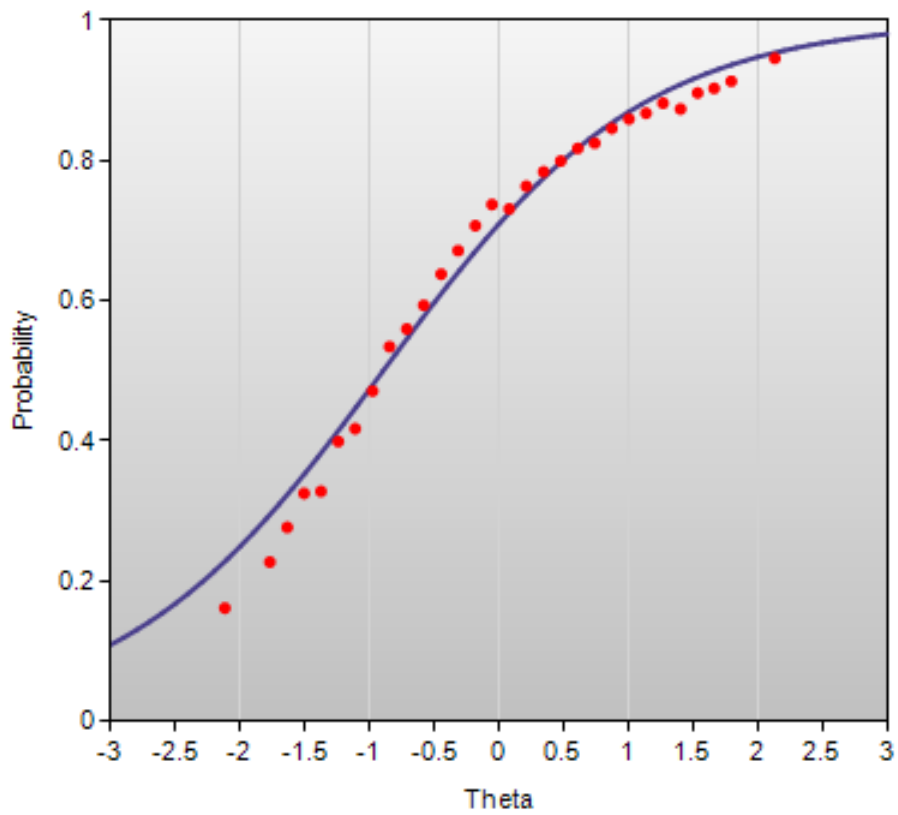
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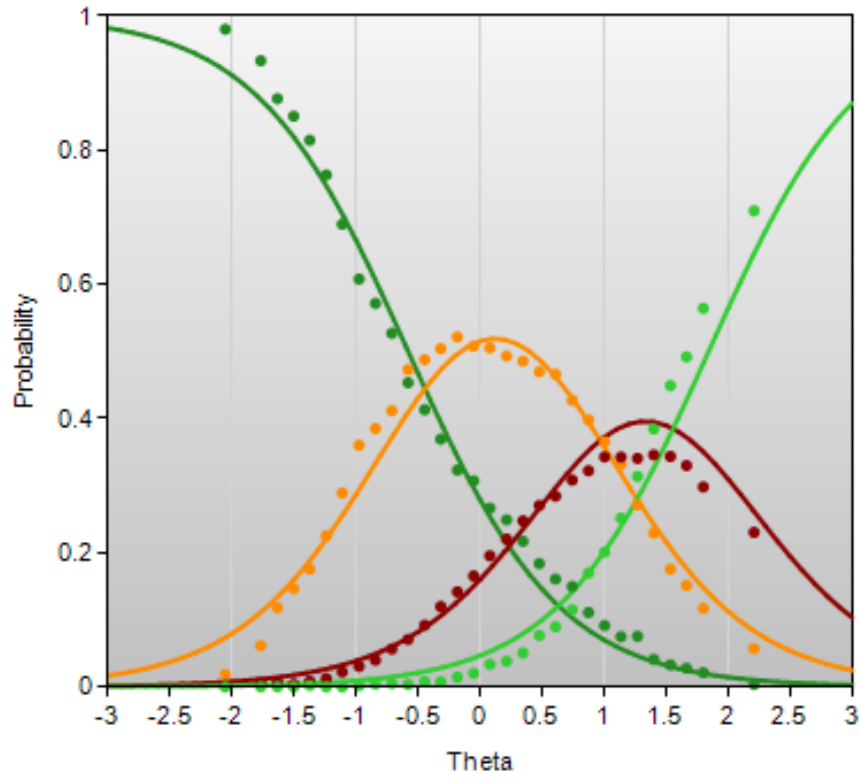
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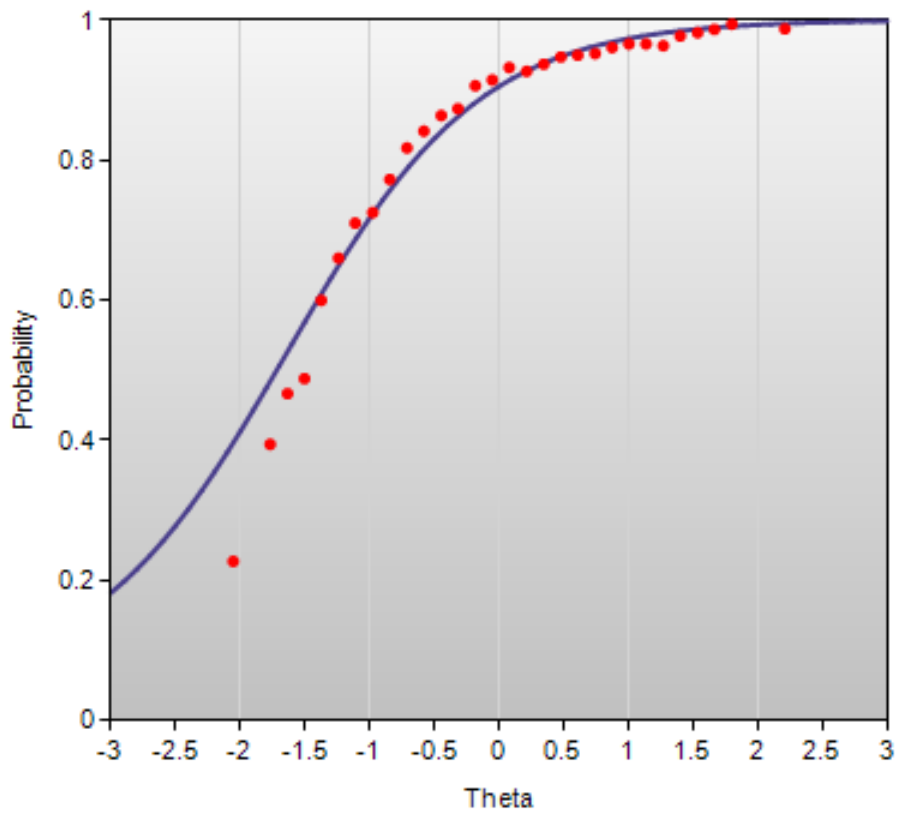
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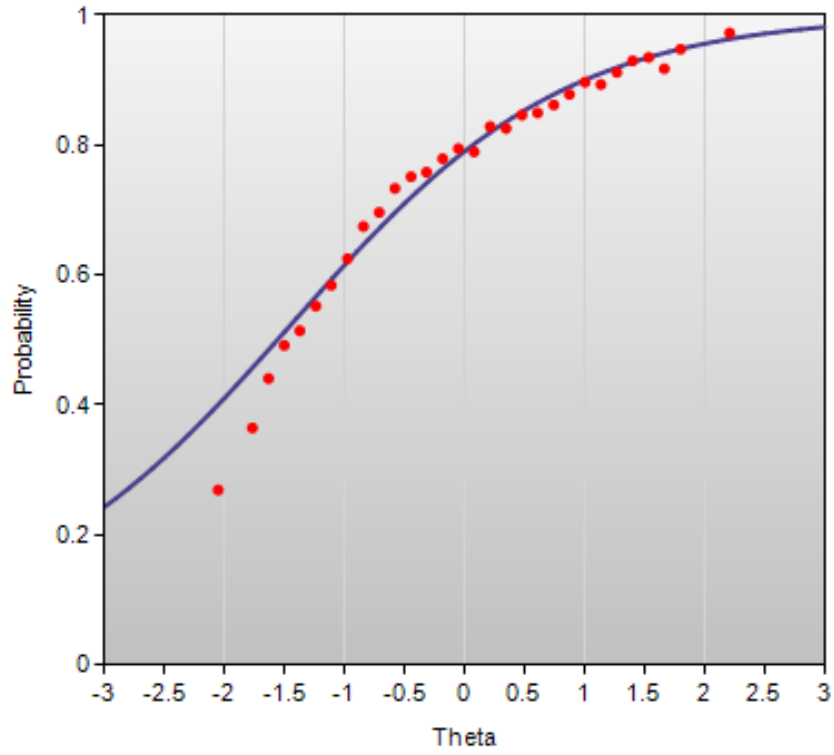
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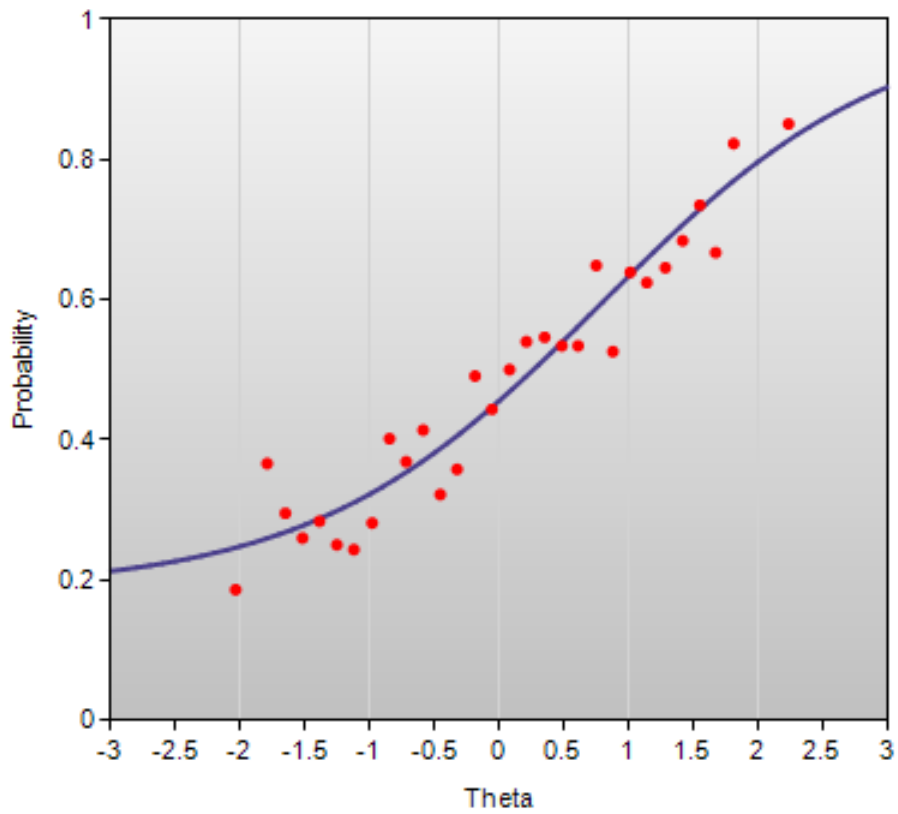
Mathematics Grade 7: IA00768



Mathematics Grade 7: IA00883



Mathematics Grade 8: IA00988



3. Mode Comparability Analysis Results

Executive Summary

In Spring 2017, school districts in Massachusetts were offered the option to administer the next-generation MCAS assessments (ELA and Math) via online versus paper in Grades 3, 5, 6, and 7. The mode comparability analysis was conducted to examine the comparability of student test performance across modes of administration, to evaluate the mode effects and differences if any, and to make statistical adjustments accordingly.

The Propensity Score Matching (PSM) method was used to generate matched samples between online and paper groups, based upon the following matching variables, including students' prior test score in 2016, and demographic variables which were race, gender, special education status (SPED), economically disadvantaged status (ECODIS), limited English proficiency status (LEP), and years in Massachusetts. The propensity scores were calculated on the above matching variables using logistic regression. Nearest neighbor matching with a caliper size of 0.02 on the propensity scores was used. For students in Grade 3 who did not have a prior test score, a pseudo prior score approach was adopted. To do so, the test score in 2016 of a certain percentile was assigned as the pseudo prior score to the student of the same percentile in 2017 in the same school, assuming that students' ability within the same school across the two years are equivalent. The standardized group differences in the matching variables before and after matching are presented in the tables in Section 3.1. All the standard differences after matching were very small and well below 0.1.

To make the matched samples between modes statewide population representative, a bi-directional matching procedure was used. The procedure consist of two steps, first, a sample from paper group was drawn to match online group, called "online-equivalent" group. Second, a sample from online group was drawn to match paper group, called "paper-equivalent" group. The final online group includes samples from both online and paper-equivalent groups, and the final paper group includes paper and online-equivalent groups. Because the final matched samples are a combination of the original group in one mode, and an equivalent group to the other mode, it is population wide representative. The population representativeness for both online and paper groups after matching is presented in the tables in Section 3.2.

The mode effects in Grades 3, 5, 6, and 7 were evaluated as the standardized test score differences between online and paper matched groups. They are summarized in Section 3.3 in Table 3.3.1 (before mode adjustment) and Table 3.3.2 (after mode adjustment), along with significance test results. We observed from small to moderate mode effects across the subject/grade before adjustment.

The equipercntile linking approach was used to make test-level statistical adjustments to ensure comparable test scores across mode administrations. Specifically, theta and scale scores in paper matched sample with a certain percentile were adjusted so that they are equivalent to theta and scale scores which had the same percentile in online matched sample. The equipercntile linking function can be nonlinear and differential conditional on students' ability level. A larger adjustment was made to a test which had greater mode effects, and vice versa. More details of mode adjustment results can be found in Section 3.4, followed by the final lookup tables for online form and paper form (after mode adjustment) in Section 3.5.

Section 3.1 Propensity Score Matching Effectiveness

Table 3.1.1 Group Difference in Matching Variables Before and After Matching
ELA03

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	43568	26857	NA	NA	NA	69321	69321	NA	NA	NA
LEP2017	0.149	0.11	0.356	0.313	-0.123	0.135	0.128	0.342	0.334	-0.023
ecodis2017	0.373	0.316	0.484	0.465	-0.123	0.35	0.342	0.477	0.474	-0.016
sped2017	0.178	0.164	0.382	0.371	-0.036	0.174	0.169	0.379	0.375	-0.014
yrs5inmass2017	0.302	0.292	0.459	0.455	-0.021	0.296	0.294	0.457	0.456	-0.005
Race_White	0.55	0.659	0.498	0.474	0.23	0.589	0.592	0.492	0.491	0.006
Race_Black	0.095	0.076	0.293	0.265	-0.07	0.088	0.087	0.283	0.281	-0.005
Race_Hispanic	0.238	0.161	0.426	0.367	-0.21	0.208	0.206	0.406	0.404	-0.005
Race_Multiple	0.039	0.04	0.195	0.197	0.005	0.042	0.042	0.201	0.201	0.002
Race_Pacific	0.001	0	0.028	0.022	-0.012	0	0.001	0.022	0.023	0.003
Race_Asian	0.076	0.061	0.265	0.239	-0.064	0.07	0.069	0.255	0.254	-0.002
Gender_Male	0.512	0.512	0.5	0.5	-0.001	0.509	0.511	0.5	0.5	0.004
Gender_Female	0.487	0.488	0.5	0.5	0.001	0.491	0.489	0.5	0.5	-0.004

Table 3.1.2 Group Difference in Matching Variables Before and After Matching
ELA05

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	39434	28263	NA	NA	NA	66329	66329	NA	NA	NA
LEP2017	0.082	0.058	0.274	0.234	-0.1	0.067	0.062	0.249	0.242	-0.018
ecodis2017	0.358	0.281	0.48	0.449	-0.173	0.325	0.318	0.468	0.466	-0.016
sped2017	0.194	0.179	0.395	0.383	-0.039	0.185	0.185	0.388	0.388	0.001
yrs5inmass2017	0.918	0.93	0.274	0.255	0.047	0.93	0.929	0.255	0.256	-0.004
Race_W	0.567	0.681	0.496	0.466	0.246	0.621	0.617	0.485	0.486	-0.007
Race_B	0.092	0.073	0.289	0.26	-0.075	0.083	0.086	0.276	0.281	0.011
Race_H	0.235	0.144	0.424	0.351	-0.26	0.195	0.193	0.396	0.395	-0.007
Race_M	0.037	0.034	0.188	0.181	-0.017	0.034	0.036	0.18	0.186	0.014
Race_P	0.001	0.001	0.029	0.028	-0.002	0.001	0.001	0.027	0.026	-0.001
Race_A	0.067	0.065	0.249	0.246	-0.007	0.065	0.065	0.246	0.246	0
Gender_M	0.508	0.514	0.5	0.5	0.011	0.51	0.508	0.5	0.5	-0.004
Gender_F	0.492	0.486	0.5	0.5	-0.011	0.49	0.492	0.5	0.5	0.004

Table 3.1.3 Group Difference in Matching Variables Before and After Matching
ELA06

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	38247	29112	NA	NA	NA	65868	65868	NA	NA	NA
LEP2017	0.074	0.044	0.261	0.205	-0.147	0.055	0.051	0.228	0.22	-0.02
ecodis2017	0.349	0.264	0.477	0.441	-0.194	0.309	0.301	0.462	0.458	-0.02
sped2017	0.189	0.175	0.392	0.38	-0.038	0.183	0.18	0.387	0.384	-0.009
yrs5inmass2017	0.916	0.938	0.277	0.241	0.091	0.933	0.935	0.25	0.247	0.008
Race_W	0.571	0.704	0.495	0.456	0.292	0.632	0.634	0.482	0.482	0.004
Race_B	0.097	0.067	0.296	0.25	-0.119	0.084	0.082	0.277	0.274	-0.008
Race_H	0.223	0.136	0.416	0.342	-0.255	0.181	0.183	0.385	0.387	0.005
Race_M	0.035	0.033	0.185	0.178	-0.014	0.034	0.033	0.182	0.179	-0.007
Race_P	0.001	0.001	0.027	0.025	-0.005	0.001	0.001	0.025	0.027	0.004
Race_A	0.071	0.057	0.257	0.232	-0.062	0.066	0.065	0.248	0.246	-0.003
Gender_M	0.512	0.51	0.5	0.5	-0.004	0.507	0.508	0.5	0.5	0.001
Gender_F	0.488	0.49	0.5	0.5	0.004	0.493	0.492	0.5	0.5	-0.001

Table 3.1.4 Group Difference in Matching Variables Before and After Matching
ELA07

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	38602	30012	NA	NA	NA	67081	67081	NA	NA	NA
LEP2017	0.07	0.045	0.255	0.207	-0.123	0.054	0.052	0.227	0.221	-0.014
ecodis2017	0.334	0.257	0.472	0.437	-0.177	0.297	0.294	0.457	0.456	-0.007
sped2017	0.187	0.17	0.39	0.375	-0.045	0.174	0.175	0.379	0.38	0.001
yrs5inmass2017	0.924	0.941	0.265	0.236	0.071	0.939	0.939	0.239	0.239	0
Race_W	0.58	0.708	0.493	0.455	0.281	0.638	0.641	0.48	0.48	0.007
Race_B	0.094	0.069	0.292	0.253	-0.098	0.083	0.083	0.275	0.276	0
Race_H	0.217	0.13	0.412	0.336	-0.26	0.177	0.175	0.382	0.38	-0.006
Race_M	0.036	0.031	0.186	0.174	-0.027	0.035	0.033	0.183	0.178	-0.011
Race_P	0.001	0.001	0.032	0.029	-0.007	0.001	0.001	0.029	0.031	0.004
Race_A	0.07	0.058	0.255	0.234	-0.05	0.064	0.065	0.244	0.246	0.004
Gender_M	0.509	0.507	0.5	0.5	-0.005	0.509	0.512	0.5	0.5	0.005
Gender_F	0.491	0.493	0.5	0.5	0.005	0.491	0.488	0.5	0.5	-0.005

Table 3.1.5 Group Difference in Matching Variables Before and After Matching
Math03

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	44137	26993	NA	NA	NA	69846	69846	NA	NA	NA
LEP2017	0.157	0.118	0.364	0.323	-0.121	0.142	0.132	0.349	0.339	-0.032
ecodis2017	0.374	0.318	0.484	0.466	-0.119	0.352	0.344	0.478	0.475	-0.016
sped2017	0.176	0.163	0.381	0.369	-0.037	0.169	0.168	0.375	0.374	-0.002
yrs5inmass2017	0.299	0.288	0.458	0.453	-0.024	0.296	0.293	0.456	0.455	-0.007
Race_White	0.546	0.655	0.498	0.475	0.229	0.587	0.591	0.492	0.492	0.009
Race_Black	0.096	0.076	0.294	0.266	-0.073	0.089	0.087	0.285	0.281	-0.01
Race_Hispanic	0.24	0.164	0.427	0.371	-0.203	0.21	0.21	0.407	0.407	0
Race_Multiple	0.039	0.04	0.194	0.196	0.005	0.041	0.038	0.197	0.192	-0.01
Race_Pacific	0.001	0	0.027	0.022	-0.012	0.001	0.001	0.022	0.028	0.012
Race_Asian	0.077	0.061	0.267	0.239	-0.068	0.071	0.072	0.257	0.258	0.002
Gender_Male	0.513	0.511	0.5	0.5	-0.002	0.504	0.508	0.5	0.5	0.008
Gender_Female	0.487	0.489	0.5	0.5	0.002	0.496	0.492	0.5	0.5	-0.008

Table 3.1.6 Group Difference in Matching Variables Before and After Matching
Math05

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	38951	28679	NA	NA	NA	66483	66483	NA	NA	NA
LEP2017	0.083	0.059	0.277	0.235	-0.105	0.069	0.067	0.254	0.249	-0.011
ecodis2017	0.361	0.28	0.48	0.449	-0.179	0.326	0.322	0.469	0.467	-0.007
sped2017	0.192	0.178	0.394	0.382	-0.038	0.185	0.18	0.389	0.384	-0.013
yrs5inmass2017	0.917	0.929	0.276	0.256	0.049	0.926	0.927	0.261	0.261	0.002
Race_W	0.562	0.683	0.496	0.465	0.26	0.618	0.614	0.486	0.487	-0.009
Race_B	0.093	0.072	0.291	0.259	-0.082	0.083	0.086	0.276	0.28	0.01
Race_H	0.238	0.143	0.426	0.35	-0.27	0.197	0.195	0.398	0.396	-0.007
Race_M	0.037	0.034	0.189	0.18	-0.018	0.034	0.036	0.182	0.187	0.01
Race_P	0.001	0.001	0.029	0.028	-0.001	0.001	0.001	0.029	0.029	0
Race_A	0.067	0.064	0.25	0.246	-0.011	0.064	0.066	0.245	0.249	0.009
Gender_M	0.507	0.514	0.5	0.5	0.014	0.516	0.507	0.5	0.5	-0.017
Gender_F	0.493	0.486	0.5	0.5	-0.014	0.484	0.493	0.5	0.5	0.017

Table 3.1.7 Group Difference in Matching Variables Before and After Matching
Math06

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	38179	29076	NA	NA	NA	65966	65966	NA	NA	NA
LEP2017	0.074	0.045	0.262	0.206	-0.144	0.058	0.057	0.234	0.231	-0.005
ecodis2017	0.348	0.265	0.476	0.441	-0.188	0.307	0.305	0.461	0.46	-0.005
sped2017	0.187	0.174	0.39	0.379	-0.035	0.177	0.174	0.381	0.379	-0.007
yrs5inmass2017	0.916	0.937	0.278	0.242	0.09	0.93	0.93	0.255	0.254	0.002
Race_W	0.569	0.705	0.495	0.456	0.297	0.628	0.631	0.483	0.482	0.006
Race_B	0.097	0.066	0.296	0.249	-0.124	0.084	0.083	0.278	0.276	-0.004
Race_H	0.223	0.136	0.416	0.343	-0.254	0.184	0.185	0.388	0.389	0.002
Race_M	0.036	0.033	0.185	0.178	-0.016	0.035	0.032	0.183	0.177	-0.013
Race_P	0.001	0.001	0.027	0.025	-0.005	0.001	0.001	0.024	0.028	0.009
Race_A	0.072	0.056	0.258	0.231	-0.067	0.066	0.065	0.248	0.246	-0.003
Gender_M	0.511	0.511	0.5	0.5	0.001	0.51	0.507	0.5	0.5	-0.007
Gender_F	0.489	0.489	0.5	0.5	-0.001	0.49	0.493	0.5	0.5	0.007

Table 3.1.8 Group Difference in Matching Variables Before and After Matching
Math07

	Unmatched Sample					Matched Sample				
	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference	Mean Paper	Mean Online	SD Paper	SD Online	Standardized Difference
Sample Size	38925	29509	NA	NA	NA	67012	67012	NA	NA	NA
LEP2017	0.07	0.046	0.256	0.21	-0.116	0.058	0.055	0.234	0.227	-0.016
ecodis2017	0.332	0.258	0.471	0.438	-0.168	0.298	0.292	0.457	0.455	-0.012
sped2017	0.184	0.169	0.387	0.375	-0.039	0.17	0.174	0.375	0.379	0.011
yrs5inmass2017	0.923	0.94	0.266	0.237	0.071	0.936	0.934	0.244	0.248	-0.009
Race_W	0.582	0.706	0.493	0.455	0.273	0.635	0.639	0.481	0.48	0.008
Race_B	0.093	0.069	0.291	0.254	-0.094	0.082	0.086	0.274	0.28	0.016
Race_H	0.216	0.131	0.411	0.338	-0.25	0.178	0.174	0.383	0.379	-0.012
Race_M	0.036	0.031	0.185	0.174	-0.026	0.034	0.033	0.181	0.18	-0.003
Race_P	0.001	0.001	0.032	0.029	-0.006	0.001	0.001	0.033	0.033	0.002
Race_A	0.07	0.058	0.256	0.234	-0.053	0.067	0.064	0.25	0.245	-0.011
Gender_M	0.508	0.507	0.5	0.5	-0.002	0.51	0.504	0.5	0.5	-0.011
Gender_F	0.492	0.493	0.5	0.5	0.002	0.49	0.496	0.5	0.5	0.011

Section 3.2 Propensity Score Matching Population Representativeness

Table 3.2.1 Population Representativeness After Matching
ELA03

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.134	0.340	0.135	0.342	0.128	0.334	0.005	-0.017
ecodis2017	0.351	0.477	0.350	0.477	0.342	0.474	-0.003	-0.018
sped2017	0.173	0.378	0.174	0.379	0.169	0.375	0.004	-0.010
yrs5inmass2017	0.298	0.457	0.296	0.457	0.294	0.456	-0.005	-0.009
Race_White	0.591	0.492	0.589	0.492	0.592	0.491	-0.003	0.003
Race_Black	0.088	0.283	0.088	0.283	0.087	0.281	0.002	-0.003
Race_Hispanic	0.209	0.406	0.208	0.406	0.206	0.404	-0.001	-0.006
Race_Multiple	0.040	0.195	0.042	0.201	0.042	0.201	0.011	0.013
Race_Pacific	0.001	0.026	0.000	0.022	0.001	0.023	-0.006	-0.004
Race_Asian	0.070	0.255	0.070	0.255	0.069	0.254	0.000	-0.003
Gender_Male	0.512	0.500	0.509	0.500	0.511	0.500	-0.007	-0.003
Gender_Female	0.488	0.500	0.491	0.500	0.489	0.500	0.007	0.003

Table 3.2.2 Population Representativeness After Matching
ELA05

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.072	0.258	0.067	0.249	0.062	0.242	-0.021	-0.037
ecodis2017	0.326	0.469	0.325	0.468	0.318	0.466	-0.003	-0.018
sped2017	0.187	0.390	0.185	0.388	0.185	0.388	-0.007	-0.006
yrs5inmass2017	0.923	0.266	0.930	0.255	0.929	0.256	0.027	0.023
Race_W	0.614	0.487	0.621	0.485	0.617	0.486	0.013	0.006
Race_B	0.084	0.278	0.083	0.276	0.086	0.281	-0.003	0.007
Race_H	0.197	0.398	0.195	0.396	0.193	0.395	-0.004	-0.010
Race_M	0.036	0.185	0.034	0.180	0.036	0.186	-0.011	0.003
Race_P	0.001	0.028	0.001	0.027	0.001	0.026	-0.004	-0.005
Race_A	0.066	0.248	0.065	0.246	0.065	0.246	-0.005	-0.004
Gender_M	0.510	0.500	0.510	0.500	0.508	0.500	0.000	-0.004
Gender_F	0.490	0.500	0.490	0.500	0.492	0.500	0.000	0.004

Table 3.2.3 Population Representativeness After Matching
ELA06

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.061	0.239	0.055	0.228	0.051	0.220	-0.024	-0.041
ecodis2017	0.312	0.463	0.309	0.462	0.301	0.458	-0.006	-0.025
sped2017	0.183	0.387	0.183	0.387	0.180	0.384	0.001	-0.008
yrs5inmass2017	0.926	0.263	0.933	0.250	0.935	0.247	0.028	0.035
Race_W	0.629	0.483	0.632	0.482	0.634	0.482	0.008	0.012
Race_B	0.084	0.277	0.084	0.277	0.082	0.274	0.000	-0.007
Race_H	0.185	0.389	0.181	0.385	0.183	0.387	-0.011	-0.006
Race_M	0.034	0.182	0.034	0.182	0.033	0.179	-0.001	-0.007
Race_P	0.001	0.026	0.001	0.025	0.001	0.027	-0.002	0.001
Race_A	0.065	0.246	0.066	0.248	0.065	0.246	0.002	0.000
Gender_M	0.511	0.500	0.507	0.500	0.508	0.500	-0.007	-0.006
Gender_F	0.489	0.500	0.493	0.500	0.492	0.500	0.007	0.006

Table 3.2.4 Population Representativeness After Matching
ELA07

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.072	0.258	0.067	0.249	0.062	0.242	-0.021	-0.037
ecodis2017	0.326	0.469	0.325	0.468	0.318	0.466	-0.003	-0.018
sped2017	0.187	0.390	0.185	0.388	0.185	0.388	-0.007	-0.006
yrs5inmass2017	0.923	0.266	0.930	0.255	0.929	0.256	0.027	0.023
Race_W	0.614	0.487	0.621	0.485	0.617	0.486	0.013	0.006
Race_B	0.084	0.278	0.083	0.276	0.086	0.281	-0.003	0.007
Race_H	0.197	0.398	0.195	0.396	0.193	0.395	-0.004	-0.010
Race_M	0.036	0.185	0.034	0.180	0.036	0.186	-0.011	0.003
Race_P	0.001	0.028	0.001	0.027	0.001	0.026	-0.004	-0.005
Race_A	0.066	0.248	0.065	0.246	0.065	0.246	-0.005	-0.004
Gender_M	0.510	0.500	0.510	0.500	0.508	0.500	0.000	-0.004
Gender_F	0.490	0.500	0.490	0.500	0.492	0.500	0.000	0.004

Table 3.2.5 Population Representativeness After Matching
MATH03

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.142	0.350	0.142	0.349	0.132	0.339	0.000	-0.030
ecodis2017	0.353	0.478	0.352	0.478	0.344	0.475	-0.002	-0.017
sped2017	0.171	0.377	0.169	0.375	0.168	0.374	-0.006	-0.008
yrs5inmass2017	0.295	0.456	0.296	0.456	0.293	0.455	0.002	-0.005
Race_White	0.587	0.492	0.587	0.492	0.591	0.492	-0.001	0.007
Race_Black	0.088	0.284	0.089	0.285	0.087	0.281	0.003	-0.006
Race_Hispanic	0.211	0.408	0.210	0.407	0.210	0.407	-0.003	-0.003
Race_Multiple	0.039	0.195	0.041	0.197	0.038	0.192	0.005	-0.005
Race_Pacific	0.001	0.025	0.001	0.022	0.001	0.028	-0.006	0.004
Race_Asian	0.071	0.257	0.071	0.257	0.072	0.258	0.000	0.002
Gender_Male	0.512	0.500	0.504	0.500	0.508	0.500	-0.017	-0.009
Gender_Female	0.488	0.500	0.496	0.500	0.492	0.500	0.017	0.009

Table 3.2.6 Population Representativeness After Matching
MATH05

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.073	0.260	0.069	0.254	0.067	0.249	-0.015	-0.025
ecodis2017	0.326	0.469	0.326	0.469	0.322	0.467	-0.002	-0.009
sped2017	0.186	0.389	0.185	0.389	0.180	0.384	-0.002	-0.015
yrs5inmass2017	0.922	0.268	0.926	0.261	0.927	0.261	0.015	0.017
Race_W	0.614	0.487	0.618	0.486	0.614	0.487	0.010	0.001
Race_B	0.084	0.278	0.083	0.276	0.086	0.280	-0.004	0.005
Race_H	0.198	0.398	0.197	0.398	0.195	0.396	-0.002	-0.008
Race_M	0.035	0.185	0.034	0.182	0.036	0.187	-0.005	0.004
Race_P	0.001	0.029	0.001	0.029	0.001	0.029	0.001	0.001
Race_A	0.066	0.248	0.064	0.245	0.066	0.249	-0.008	0.001
Gender_M	0.510	0.500	0.516	0.500	0.507	0.500	0.011	-0.006
Gender_F	0.490	0.500	0.484	0.500	0.493	0.500	-0.011	0.006

Table 3.2.7 Population Representativeness After Matching
MATH06

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.061	0.240	0.058	0.234	0.057	0.231	-0.015	-0.019
ecodis2017	0.312	0.463	0.307	0.461	0.305	0.460	-0.010	-0.015
sped2017	0.182	0.386	0.177	0.381	0.174	0.379	-0.013	-0.019
yrs5inmass2017	0.925	0.263	0.930	0.255	0.930	0.254	0.018	0.020
Race_W	0.628	0.483	0.628	0.483	0.631	0.482	0.001	0.007
Race_B	0.084	0.277	0.084	0.278	0.083	0.276	0.001	-0.003
Race_H	0.186	0.389	0.184	0.388	0.185	0.389	-0.003	-0.001
Race_M	0.034	0.182	0.035	0.183	0.032	0.177	0.001	-0.011
Race_P	0.001	0.026	0.001	0.024	0.001	0.028	-0.004	0.005
Race_A	0.065	0.247	0.066	0.248	0.065	0.246	0.002	-0.001
Gender_M	0.511	0.500	0.510	0.500	0.507	0.500	-0.001	-0.008
Gender_F	0.489	0.500	0.490	0.500	0.493	0.500	0.001	0.008

Table 3.2.8 Population Representativeness After Matching
MATH07

	Population		Paper		Online		Standardized Difference	
	Mean	SD	Mean	SD	Mean	SD	Paper	Online
LEP2017	0.060	0.237	0.058	0.234	0.055	0.227	-0.007	-0.022
ecodis2017	0.300	0.458	0.298	0.457	0.292	0.455	-0.004	-0.016
sped2017	0.178	0.382	0.170	0.375	0.174	0.379	-0.021	-0.010
yrs5inmass2017	0.930	0.254	0.936	0.244	0.934	0.248	0.023	0.014
Race_W	0.636	0.481	0.635	0.481	0.639	0.480	-0.001	0.007
Race_B	0.083	0.276	0.082	0.274	0.086	0.280	-0.004	0.010
Race_H	0.179	0.384	0.178	0.383	0.174	0.379	-0.003	-0.013
Race_M	0.034	0.181	0.034	0.181	0.033	0.180	0.002	-0.002
Race_P	0.001	0.031	0.001	0.033	0.001	0.033	0.004	0.005
Race_A	0.065	0.246	0.067	0.250	0.064	0.245	0.008	-0.003
Gender_M	0.508	0.500	0.510	0.500	0.504	0.500	0.004	-0.007
Gender_F	0.492	0.500	0.490	0.500	0.496	0.500	-0.004	0.007

Section 3.3 Mode Effect Results

Table 3.3.1 Mode Effect Before Adjustment

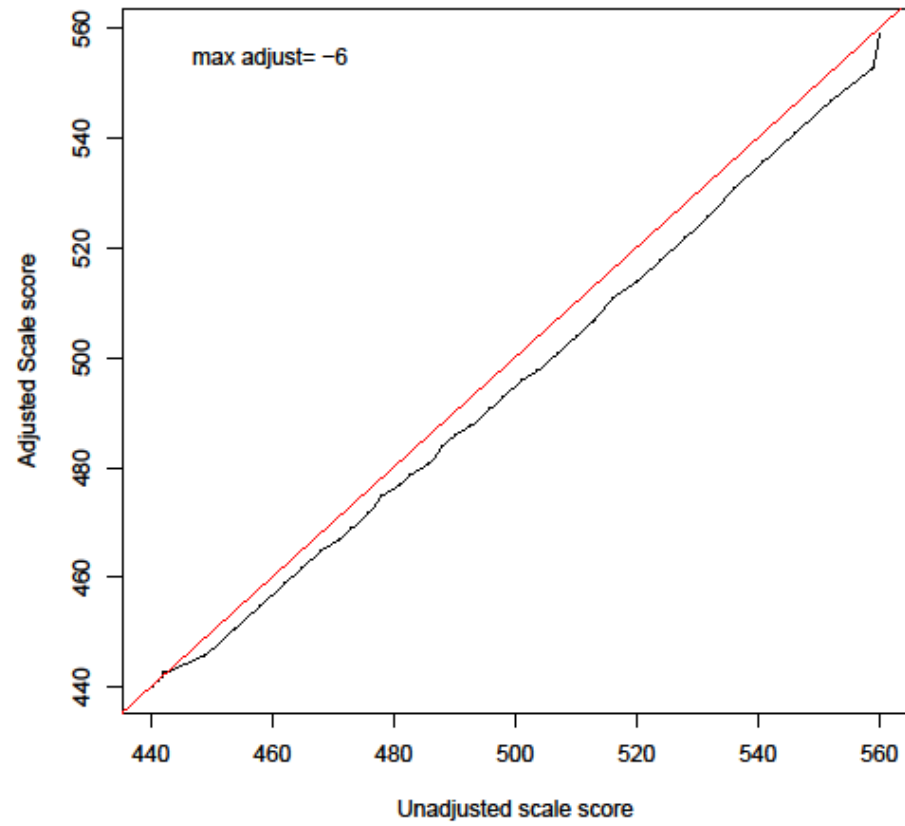
TEST	Paper		Online		Effect size	Confidence Interval		Significance
	Mean	SD	Mean	SD		2.5	97.5	
ELA03	504.1	22.3	499.2	21.6	0.222	-0.011	0.010	1
ELA05	501.3	19.6	498.9	20.1	0.118	-0.011	0.011	1
ELA06	503.0	20.9	499.6	21.0	0.160	-0.011	0.011	1
ELA07	502.2	20.6	499.0	21.1	0.154	-0.011	0.010	1
MAT03	502.2	23.7	499.5	23.1	0.113	-0.011	0.011	1
MAT05	499.3	21.3	498.7	20.8	0.030	-0.010	0.010	1
MAT06	500.3	21.8	499.4	21.6	0.042	-0.011	0.010	1
MAT07	499.7	23.2	498.6	22.8	0.047	-0.012	0.011	1

Table 3.3.2 Mode Effect After Adjustment

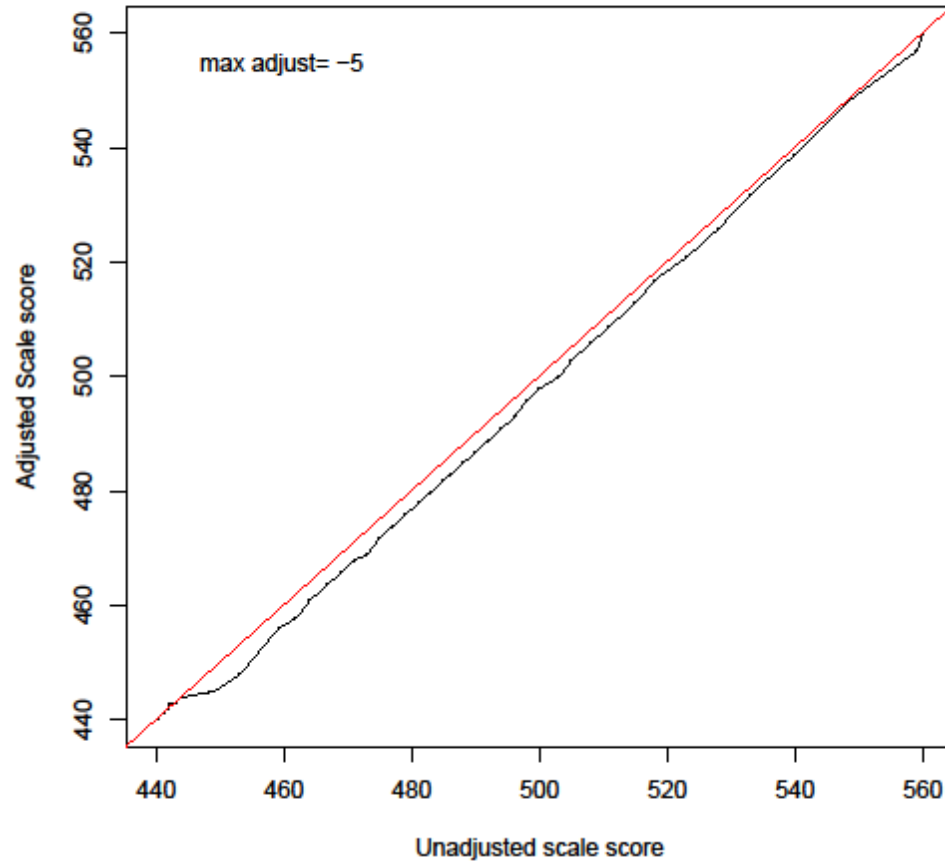
TEST	Paper		Online		Effect size	Confidence Interval		Significance Sig
	Mean	SD	Mean	SD		2.5	97.5	
ELA03	499.1	21.6	499.2	21.6	-0.006	-0.011	0.010	0
ELA05	498.9	20.2	498.9	20.1	-0.001	-0.011	0.011	0
ELA06	499.6	21.0	499.6	21.0	0.000	-0.011	0.011	0
ELA07	498.9	21.0	499.0	21.1	-0.003	-0.011	0.009	0
MAT03	499.5	23.1	499.5	23.1	0.001	-0.012	0.011	0
MAT05	498.7	20.6	498.7	20.8	0.000	-0.010	0.010	0
MAT06	499.4	21.5	499.4	21.6	0.002	-0.011	0.011	0
MAT07	498.7	22.8	498.6	22.8	0.005	-0.011	0.011	0

Section 3.4 Mode Adjustment

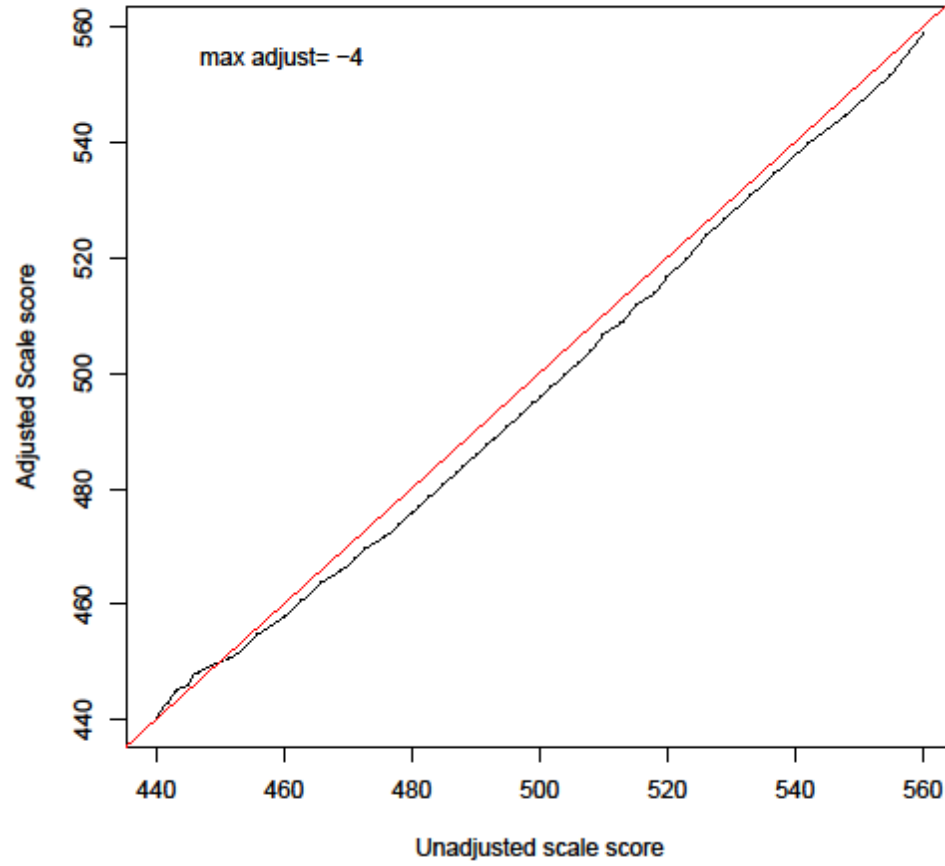
ELA03



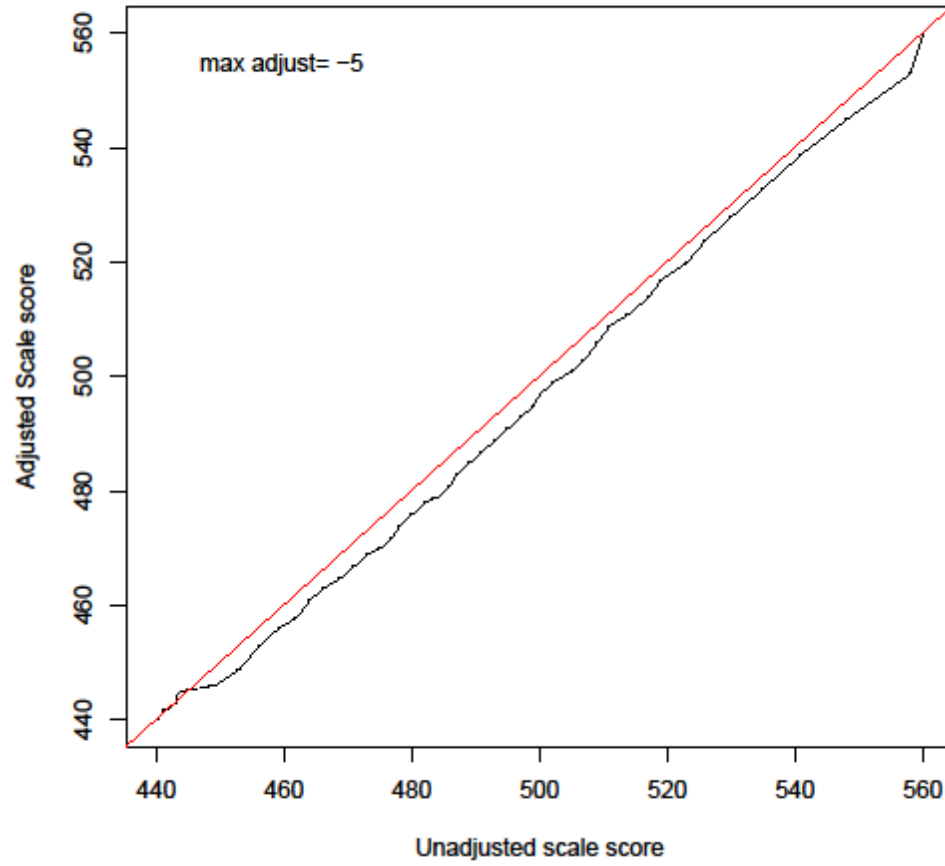
ELA05



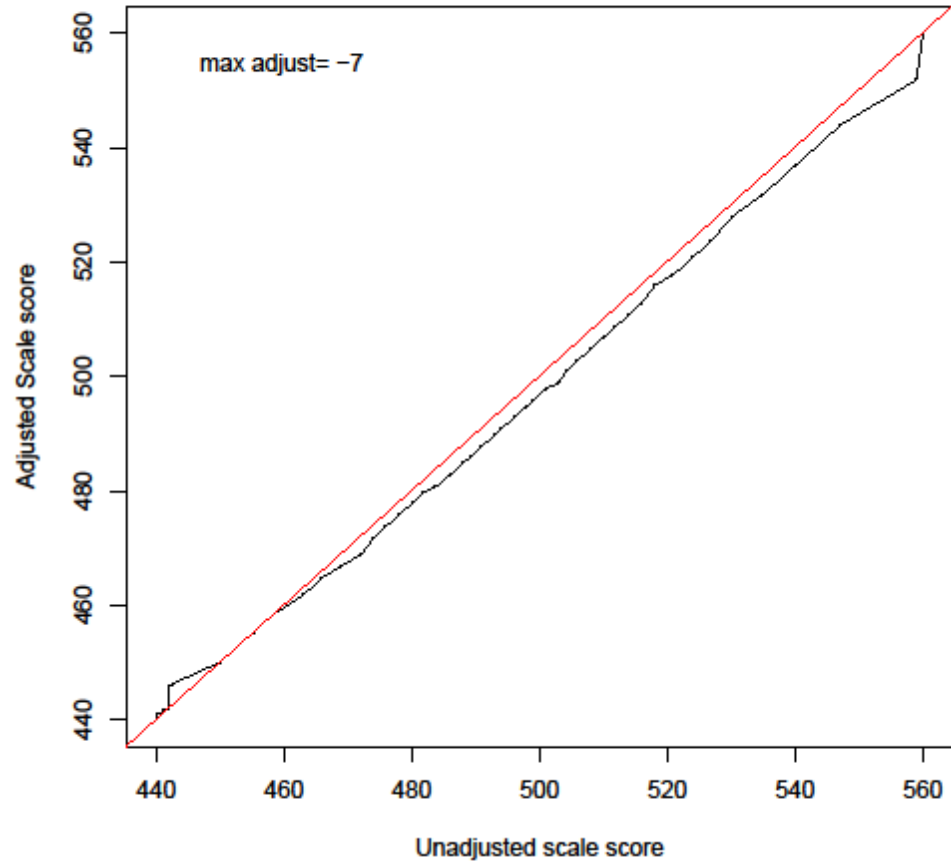
ELA06



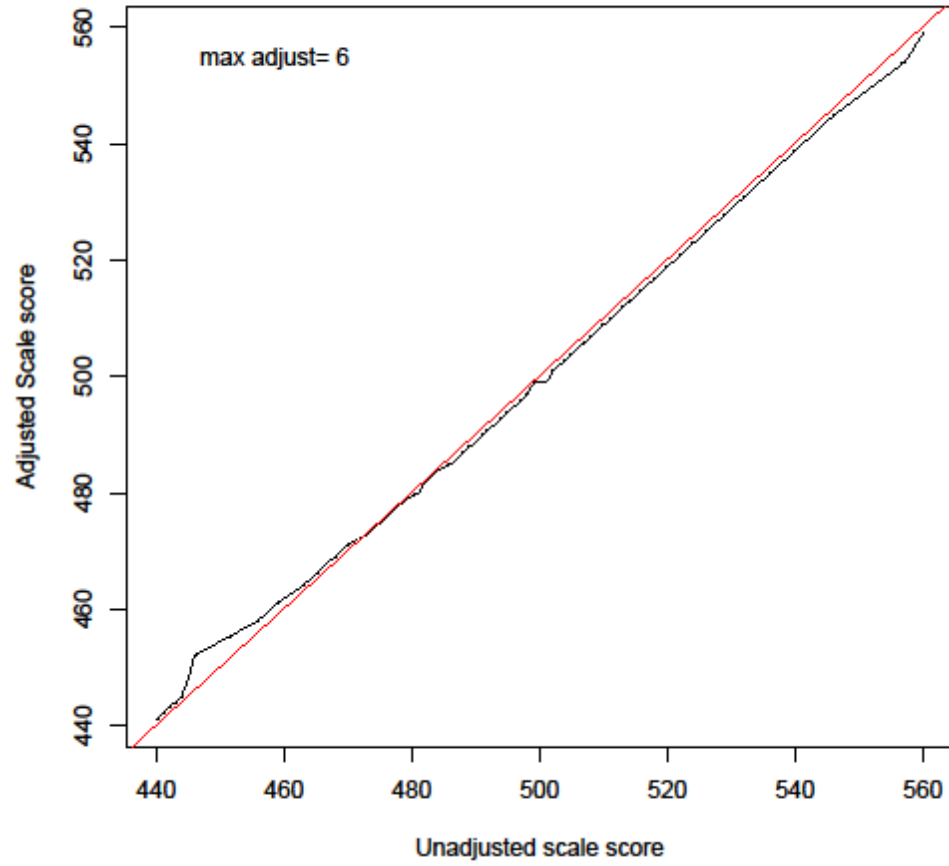
ELA07



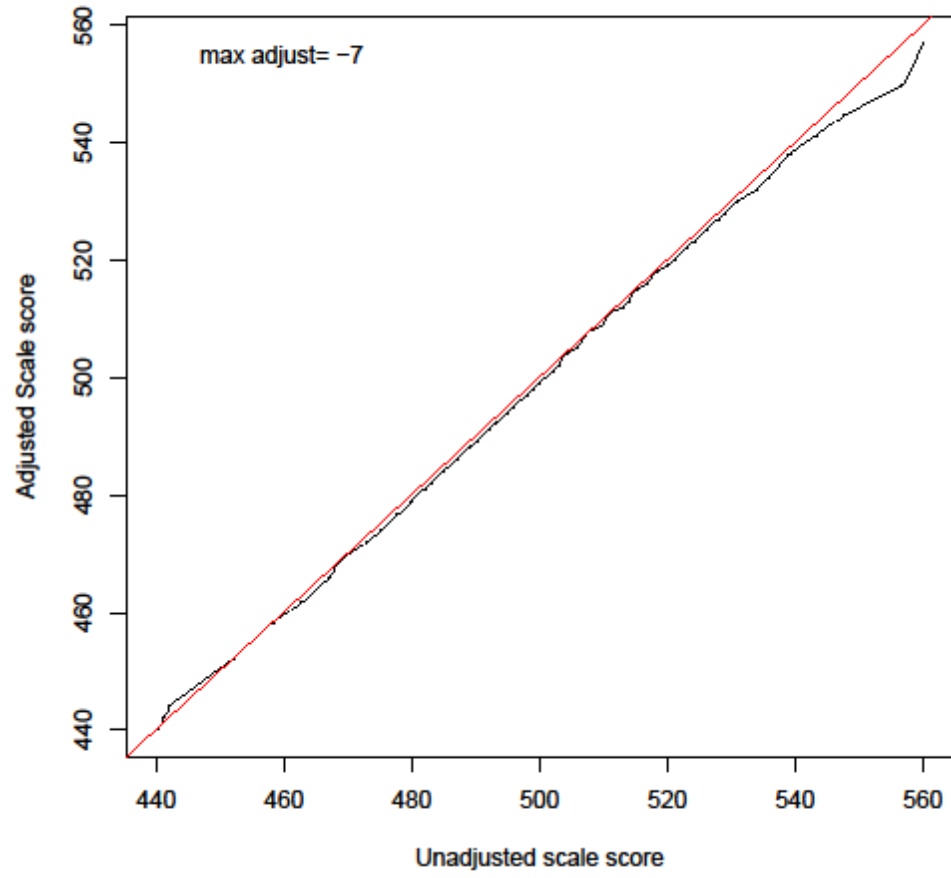
MAT03



MAT05



MAT06



MAT07

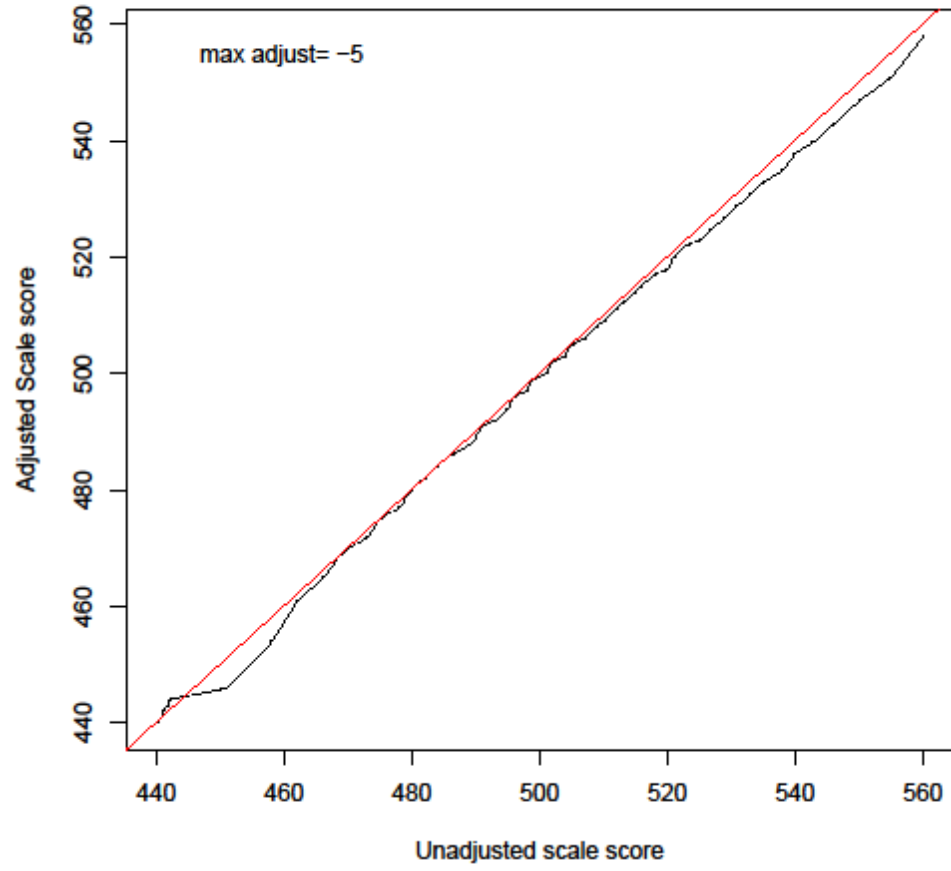


Table 3.4.1 Mode Adjustment ELA03

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-3.17	-3.18	440	440	0
1	-3.15	-3.14	441	441	0
2	-3.12	-3.10	441	441	0
3	-3.09	-3.07	442	442	0
4	-3.06	-3.03	442	443	1
5	-3.04	-3.00	443	443	0
6	-2.70	-2.87	449	446	-3
7	-2.44	-2.61	454	451	-3
8	-2.22	-2.37	458	455	-3
9	-2.03	-2.18	462	459	-3
10	-1.85	-2.01	465	462	-3
11	-1.70	-1.86	468	465	-3
12	-1.55	-1.72	471	467	-4
13	-1.41	-1.58	473	469	-4
14	-1.27	-1.46	476	472	-4
15	-1.14	-1.34	478	475	-3
16	-1.01	-1.22	481	477	-4
17	-0.89	-1.10	483	479	-4
18	-0.76	-0.98	486	481	-5
19	-0.63	-0.86	488	484	-4
20	-0.49	-0.74	490	486	-4
21	-0.36	-0.61	493	488	-5
22	-0.22	-0.49	496	491	-5
23	-0.08	-0.35	498	493	-5
24	0.07	-0.21	501	496	-5
25	0.22	-0.07	504	498	-6
26	0.38	0.08	507	501	-6
27	0.54	0.24	510	504	-6

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
28	0.71	0.40	513	507	-6
29	0.89	0.58	516	511	-5
30	1.07	0.76	520	514	-6
31	1.27	0.95	524	518	-6
32	1.48	1.17	528	522	-6
33	1.70	1.40	532	526	-6
34	1.94	1.65	536	531	-5
35	2.19	1.92	541	536	-5
36	2.47	2.21	546	541	-5
37	2.77	2.52	552	547	-5
38	3.13	2.84	559	553	-6
39	3.20	3.15	560	559	-1
40	3.20	3.15	560	559	-1
41	3.20	3.15	560	559	-1
42	3.20	3.15	560	559	-1

Table 3.4.2 Mode Adjustment ELA05

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-3.36	-3.37	440	440	0
1	-3.33	-3.31	441	441	0
2	-3.29	-3.27	441	441	0
3	-3.26	-3.24	442	442	0
4	-3.22	-3.21	442	443	1
5	-3.19	-3.18	443	443	0
6	-3.15	-3.15	444	444	0
7	-3.12	-3.12	444	444	0
8	-2.85	-3.08	449	445	-4
9	-2.63	-2.90	453	448	-5

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
10	-2.44	-2.67	456	452	-4
11	-2.27	-2.48	459	456	-3
12	-2.12	-2.31	462	458	-4
13	-1.97	-2.16	464	461	-3
14	-1.84	-2.02	467	464	-3
15	-1.71	-1.90	469	466	-3
16	-1.59	-1.78	471	468	-3
17	-1.48	-1.66	473	469	-4
18	-1.36	-1.55	475	472	-3
19	-1.25	-1.44	477	474	-3
20	-1.15	-1.33	479	476	-3
21	-1.04	-1.22	481	478	-3
22	-0.94	-1.11	483	480	-3
23	-0.83	-1.01	485	482	-3
24	-0.73	-0.90	486	483	-3
25	-0.63	-0.79	488	485	-3
26	-0.52	-0.68	490	487	-3
27	-0.42	-0.57	492	489	-3
28	-0.31	-0.45	494	491	-3
29	-0.19	-0.33	496	493	-3
30	-0.07	-0.21	498	496	-2
31	0.05	-0.08	500	498	-2
32	0.19	0.06	503	500	-3
33	0.33	0.21	505	503	-2
34	0.49	0.38	508	506	-2
35	0.67	0.56	511	509	-2
36	0.86	0.76	515	513	-2
37	1.08	0.98	518	517	-1
38	1.33	1.23	523	521	-2

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
39	1.61	1.51	528	526	-2
40	1.92	1.83	533	532	-1
41	2.30	2.23	540	539	-1
42	2.75	2.78	548	548	0
43	3.40	3.26	559	557	-2
44	3.43	3.43	560	560	0
45	3.43	3.43	560	560	0
46	3.43	3.43	560	560	0

Table 3.4.3 Mode Adjustment ELA07

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-3.13	-3.13	440	440	0
1	-3.09	-3.09	441	441	0
2	-3.06	-3.04	441	442	1
3	-3.02	-3.00	442	442	0
4	-2.99	-2.96	443	443	0
5	-2.95	-2.92	443	444	1
6	-2.91	-2.88	444	445	1
7	-2.66	-2.80	449	446	-3
8	-2.46	-2.64	453	449	-4
9	-2.29	-2.45	456	453	-3
10	-2.14	-2.30	459	456	-3
11	-2.00	-2.17	462	458	-4
12	-1.87	-2.05	464	461	-3
13	-1.75	-1.94	466	463	-3
14	-1.63	-1.83	469	465	-4
15	-1.52	-1.73	471	467	-4
16	-1.42	-1.63	473	469	-4

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
17	-1.31	-1.54	475	470	-5
18	-1.21	-1.44	477	472	-5
19	-1.12	-1.35	478	474	-4
20	-1.02	-1.25	480	476	-4
21	-0.93	-1.16	482	478	-4
22	-0.83	-1.07	484	479	-5
23	-0.74	-0.97	486	481	-5
24	-0.64	-0.88	487	483	-4
25	-0.55	-0.78	489	485	-4
26	-0.46	-0.68	491	487	-4
27	-0.36	-0.58	493	489	-4
28	-0.26	-0.48	495	491	-4
29	-0.17	-0.38	497	493	-4
30	-0.07	-0.27	499	495	-4
31	0.04	-0.16	500	497	-3
32	0.14	-0.05	502	499	-3
33	0.25	0.07	505	501	-4
34	0.36	0.19	507	503	-4
35	0.48	0.32	509	506	-3
36	0.61	0.46	511	509	-2
37	0.74	0.60	514	511	-3
38	0.88	0.75	517	514	-3
39	1.03	0.91	519	517	-2
40	1.20	1.08	523	520	-3
41	1.38	1.27	526	524	-2
42	1.60	1.49	530	528	-2
43	1.85	1.74	535	533	-2
44	2.16	2.04	541	539	-2
45	2.55	2.39	548	545	-3

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
46	3.07	2.77	558	553	-5
47	3.15	3.13	560	560	0
48	3.15	3.13	560	560	0
49	3.15	3.13	560	560	0

Table 3.4.4 Mode Adjustment ELA07

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-3.17	-3.16	440	440	0
1	-3.11	-3.08	441	442	1
2	-3.05	-3.00	442	443	1
3	-2.99	-2.93	443	445	2
4	-2.93	-2.86	445	446	1
5	-2.87	-2.77	446	448	2
6	-2.55	-2.59	452	451	-1
7	-2.31	-2.37	456	455	-1
8	-2.12	-2.21	460	458	-2
9	-1.95	-2.07	463	461	-2
10	-1.79	-1.93	466	464	-2
11	-1.66	-1.81	469	466	-3
12	-1.53	-1.70	471	468	-3
13	-1.41	-1.59	473	470	-3
14	-1.30	-1.49	476	472	-4
15	-1.19	-1.39	478	474	-4
16	-1.09	-1.30	480	476	-4
17	-0.99	-1.20	481	477	-4
18	-0.90	-1.11	483	479	-4
19	-0.80	-1.02	485	481	-4

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
20	-0.71	-0.93	487	483	-4
21	-0.62	-0.84	488	484	-4
22	-0.53	-0.75	490	486	-4
23	-0.44	-0.66	492	488	-4
24	-0.35	-0.57	493	489	-4
25	-0.26	-0.48	495	491	-4
26	-0.17	-0.39	497	493	-4
27	-0.08	-0.30	499	495	-4
28	0.01	-0.20	500	496	-4
29	0.11	-0.10	502	498	-4
30	0.21	0.00	504	500	-4
31	0.32	0.11	506	502	-4
32	0.42	0.23	508	504	-4
33	0.54	0.35	510	507	-3
34	0.66	0.47	513	509	-4
35	0.78	0.61	515	512	-3
36	0.92	0.75	518	514	-4
37	1.06	0.90	520	517	-3
38	1.21	1.06	523	520	-3
39	1.37	1.24	526	524	-2
40	1.55	1.42	529	527	-2
41	1.74	1.61	533	531	-2
42	1.96	1.84	537	535	-2
43	2.22	2.09	542	540	-2
44	2.53	2.39	548	545	-3
45	2.90	2.73	555	552	-3
46	3.15	3.08	560	559	-1
47	3.15	3.08	560	559	-1
48	3.15	3.08	560	559	-1
49	3.15	3.08	560	559	-1

Table 3.4.5 Mode Adjustment Math03

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-2.78	-2.78	440	440	0
1	-2.77	-2.75	440	441	1
2	-2.75	-2.73	441	441	0
3	-2.74	-2.71	441	441	0
4	-2.73	-2.70	441	442	1
5	-2.71	-2.68	442	442	0
6	-2.70	-2.64	442	443	1
7	-2.68	-2.52	442	446	4
8	-2.34	-2.29	450	450	0
9	-2.08	-2.09	455	455	0
10	-1.87	-1.91	459	459	0
11	-1.70	-1.76	463	462	-1
12	-1.55	-1.62	466	465	-1
13	-1.42	-1.50	469	467	-2
14	-1.30	-1.39	472	469	-3
15	-1.19	-1.29	474	472	-2
16	-1.08	-1.19	476	474	-2
17	-0.99	-1.10	478	476	-2
18	-0.89	-1.01	480	478	-2
19	-0.80	-0.92	482	480	-2
20	-0.72	-0.84	484	481	-3
21	-0.64	-0.76	486	483	-3
22	-0.55	-0.68	488	485	-3
23	-0.47	-0.61	489	486	-3
24	-0.40	-0.53	491	488	-3
25	-0.32	-0.45	493	490	-3
26	-0.24	-0.38	494	491	-3
27	-0.16	-0.30	496	493	-3

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
28	-0.09	-0.23	498	495	-3
29	-0.01	-0.15	499	496	-3
30	0.07	-0.07	501	498	-3
31	0.15	0.01	503	499	-4
32	0.23	0.09	504	501	-3
33	0.32	0.17	506	503	-3
34	0.40	0.26	508	505	-3
35	0.49	0.35	510	507	-3
36	0.58	0.44	512	509	-3
37	0.68	0.54	514	511	-3
38	0.78	0.64	516	513	-3
39	0.89	0.75	518	516	-2
40	1.01	0.87	521	518	-3
41	1.14	1.01	524	521	-3
42	1.29	1.16	527	524	-3
43	1.46	1.32	530	528	-2
44	1.65	1.52	535	532	-3
45	1.90	1.77	540	537	-3
46	2.23	2.08	547	544	-3
47	2.78	2.45	559	552	-7
48	2.84	2.83	560	560	0

Table 3.4.6 Mode Adjustment Math05

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-3.13	-3.10	440	441	1
1	-3.08	-3.03	441	442	1
2	-3.04	-2.98	442	443	1
3	-2.99	-2.94	443	444	1

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
4	-2.95	-2.90	443	444	1
5	-2.90	-2.84	444	445	1
6	-2.86	-2.70	445	448	3
7	-2.81	-2.52	446	452	6
8	-2.53	-2.36	451	455	4
9	-2.30	-2.19	456	458	2
10	-2.11	-2.03	459	461	2
11	-1.94	-1.89	463	464	1
12	-1.79	-1.75	465	466	1
13	-1.65	-1.63	468	469	1
14	-1.53	-1.51	470	471	1
15	-1.41	-1.40	473	473	0
16	-1.30	-1.29	475	475	0
17	-1.19	-1.19	477	477	0
18	-1.09	-1.10	479	479	0
19	-0.99	-1.00	481	480	-1
20	-0.90	-0.92	482	482	0
21	-0.81	-0.83	484	484	0
22	-0.72	-0.74	486	485	-1
23	-0.63	-0.66	488	487	-1
24	-0.55	-0.58	489	488	-1
25	-0.47	-0.50	491	490	-1
26	-0.39	-0.42	492	491	-1
27	-0.31	-0.35	494	493	-1
28	-0.23	-0.27	495	494	-1
29	-0.15	-0.20	497	496	-1
30	-0.08	-0.12	498	497	-1
31	0.00	-0.05	499	499	0
32	0.07	0.02	501	499	-2

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
33	0.15	0.10	502	501	-1
34	0.22	0.17	504	503	-1
35	0.30	0.25	505	504	-1
36	0.37	0.32	507	506	-1
37	0.45	0.40	508	507	-1
38	0.53	0.48	510	509	-1
39	0.61	0.56	511	510	-1
40	0.70	0.64	513	512	-1
41	0.78	0.72	514	513	-1
42	0.87	0.81	516	515	-1
43	0.97	0.91	518	517	-1
44	1.06	1.00	520	519	-1
45	1.17	1.11	522	521	-1
46	1.29	1.23	524	523	-1
47	1.41	1.36	526	525	-1
48	1.55	1.50	529	528	-1
49	1.71	1.66	532	531	-1
50	1.90	1.86	536	535	-1
51	2.13	2.10	540	539	-1
52	2.46	2.41	546	545	-1
53	3.02	2.86	557	554	-3
54	3.18	3.13	560	559	-1

Table 3.4.7 Mode Adjustment Math06

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-3.03	-3.01	440	440	0
1	-3.00	-2.97	441	441	0
2	-2.98	-2.92	441	442	1

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
3	-2.95	-2.88	442	443	1
4	-2.92	-2.82	442	444	2
5	-2.44	-2.43	452	452	0
6	-2.12	-2.13	458	458	0
7	-1.88	-1.90	463	462	-1
8	-1.69	-1.72	467	466	-1
9	-1.53	-1.56	469	469	0
10	-1.38	-1.42	473	472	-1
11	-1.26	-1.30	475	474	-1
12	-1.14	-1.19	478	477	-1
13	-1.03	-1.08	480	479	-1
14	-0.93	-0.99	482	481	-1
15	-0.84	-0.89	483	482	-1
16	-0.75	-0.80	485	484	-1
17	-0.66	-0.72	487	486	-1
18	-0.58	-0.64	489	488	-1
19	-0.50	-0.56	490	489	-1
20	-0.42	-0.48	492	491	-1
21	-0.35	-0.40	493	492	-1
22	-0.27	-0.32	495	494	-1
23	-0.20	-0.25	496	495	-1
24	-0.13	-0.18	498	497	-1
25	-0.06	-0.10	499	498	-1
26	0.01	-0.03	500	499	-1
27	0.08	0.04	502	501	-1
28	0.15	0.11	503	502	-1
29	0.22	0.18	504	504	0
30	0.28	0.25	506	505	-1
31	0.35	0.32	507	507	0

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
32	0.42	0.39	508	508	0
33	0.49	0.46	510	509	-1
34	0.55	0.53	511	511	0
35	0.62	0.59	513	512	-1
36	0.69	0.66	514	513	-1
37	0.76	0.73	515	515	0
38	0.83	0.80	517	516	-1
39	0.90	0.87	518	518	0
40	0.97	0.94	520	519	-1
41	1.05	1.02	521	520	-1
42	1.13	1.09	523	522	-1
43	1.21	1.17	524	523	-1
44	1.29	1.25	526	525	-1
45	1.38	1.33	528	527	-1
46	1.47	1.41	529	528	-1
47	1.57	1.50	531	530	-1
48	1.68	1.60	534	532	-2
49	1.81	1.71	536	534	-2
50	1.95	1.89	539	538	-1
51	2.14	2.06	543	541	-2
52	2.40	2.25	548	545	-3
53	2.86	2.50	557	550	-7
54	3.01	2.86	560	557	-3

Table 3.4.8 Mode Adjustment Math07

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
0	-2.86	-2.84	440	440	0
1	-2.83	-2.79	441	441	0
2	-2.80	-2.75	441	442	1
3	-2.77	-2.70	442	443	1
4	-2.75	-2.66	442	444	2
5	-2.31	-2.59	451	446	-5
6	-2.01	-2.16	458	454	-4
7	-1.78	-1.87	462	461	-1
8	-1.59	-1.65	466	465	-1
9	-1.43	-1.48	469	469	0
10	-1.28	-1.32	473	472	-1
11	-1.16	-1.19	475	475	0
12	-1.04	-1.07	478	477	-1
13	-0.93	-0.96	480	480	0
14	-0.83	-0.85	482	482	0
15	-0.73	-0.75	484	484	0
16	-0.64	-0.66	486	486	0
17	-0.55	-0.57	488	487	-1
18	-0.47	-0.49	490	489	-1
19	-0.39	-0.41	491	491	0
20	-0.31	-0.33	493	492	-1
21	-0.23	-0.25	495	494	-1
22	-0.15	-0.18	496	496	0
23	-0.08	-0.11	498	497	-1
24	0.00	-0.03	499	499	0
25	0.07	0.04	501	500	-1
26	0.15	0.11	502	502	0
27	0.22	0.18	504	503	-1

continued

Raw	Theta	Theta_adjusted	ScaleScore	ScaleScore_adjusted	Adjustment
28	0.29	0.25	505	505	0
29	0.37	0.32	507	506	-1
30	0.44	0.39	509	508	-1
31	0.52	0.47	510	509	-1
32	0.59	0.54	512	511	-1
33	0.67	0.61	513	512	-1
34	0.74	0.68	515	514	-1
35	0.82	0.76	516	515	-1
36	0.90	0.83	518	517	-1
37	0.98	0.91	520	518	-2
38	1.06	0.99	521	520	-1
39	1.15	1.07	523	522	-1
40	1.24	1.15	525	523	-2
41	1.33	1.24	527	525	-2
42	1.42	1.33	529	527	-2
43	1.52	1.42	531	529	-2
44	1.62	1.51	533	531	-2
45	1.73	1.61	535	533	-2
46	1.84	1.72	538	535	-3
47	1.97	1.84	540	538	-2
48	2.10	1.97	543	540	-3
49	2.26	2.11	546	543	-3
50	2.44	2.28	550	547	-3
51	2.66	2.50	555	551	-4
52	2.92	2.81	560	558	-2
53	2.92	2.81	560	558	-2
54	2.92	2.81	560	558	-2

Section 3.5 Lookup Tables

Table 3.5.1 Raw Score to Scale Score Lookup Table
 ELA Grade 03 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-3.17	-3.18	440	440	1	1	10.00	10.00
1	-3.13	-3.14	441	441	1	1	10.00	10.00
2	-3.09	-3.10	442	441	1	1	10.00	10.00
3	-3.05	-3.07	442	442	1	1	10.00	10.00
4	-3.00	-3.03	443	443	1	1	10.00	10.00
5	-2.96	-3.00	444	443	1	1	10.00	10.00
6	-2.64	-2.87	450	446	1	1	9.93	10.00
7	-2.40	-2.61	455	451	1	1	8.76	9.93
8	-2.19	-2.37	459	455	1	1	7.97	8.94
9	-2.01	-2.18	462	459	1	1	7.40	8.25
10	-1.85	-2.01	465	462	1	1	6.98	7.75
11	-1.70	-1.86	468	465	1	1	6.66	7.35
12	-1.56	-1.72	470	467	2	1	6.42	7.03
13	-1.42	-1.58	473	469	2	1	6.27	6.79
14	-1.29	-1.46	475	472	2	2	6.18	6.60
15	-1.16	-1.34	478	475	2	2	6.15	6.47
16	-1.04	-1.22	480	477	2	2	6.18	6.38
17	-0.91	-1.10	483	479	2	2	6.24	6.33
18	-0.78	-0.98	485	481	2	2	6.34	6.33
19	-0.65	-0.86	488	484	2	2	6.46	6.36
20	-0.52	-0.74	490	486	2	2	6.60	6.42
21	-0.38	-0.61	493	488	2	2	6.75	6.51
22	-0.24	-0.49	495	491	2	2	6.90	6.62
23	-0.10	-0.35	498	493	2	2	7.05	6.74

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
24	0.05	-0.21	501	496	3	2	7.19	6.88
25	0.20	-0.07	504	498	3	2	7.33	7.03
26	0.36	0.08	506	501	3	3	7.47	7.19
27	0.52	0.24	510	504	3	3	7.62	7.36
28	0.68	0.40	513	507	3	3	7.79	7.55
29	0.86	0.58	516	511	3	3	7.99	7.75
30	1.04	0.76	519	514	3	3	8.20	7.99
31	1.23	0.95	523	518	3	3	8.44	8.25
32	1.43	1.17	527	522	3	3	8.67	8.54
33	1.65	1.40	531	526	4	3	8.90	8.85
34	1.87	1.65	535	531	4	4	9.12	9.15
35	2.11	1.92	540	536	4	4	9.36	9.45
36	2.37	2.21	544	541	4	4	9.65	9.77
37	2.66	2.52	550	547	4	4	10.00	10.00
38	2.98	2.84	556	553	4	4	10.00	10.00
39	3.20	3.15	560	560	4	4	10.00	10.00
40	3.20	3.15	560	560	4	4	10.00	10.00
41	3.20	3.15	560	560	4	4	10.00	10.00
42	3.20	3.15	560	560	4	4	10.00	10.00

Table 3.5.2 Raw Score to Scale Score Lookup Table
 ELA Grade 04 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-3.15	-3.15	440	440	1	1	10.00	10.00
1	-3.12	-3.14	441	440	1	1	10.00	10.00
2	-3.08	-3.12	441	441	1	1	10.00	10.00
3	-3.04	-3.11	442	441	1	1	10.00	10.00

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
4	-3.01	-3.10	443	441	1	1	10.00	10.00
5	-2.97	-3.08	443	441	1	1	10.00	10.00
6	-2.93	-3.07	444	442	1	1	10.00	10.00
7	-2.67	-3.05	449	442	1	1	9.24	10.00
8	-2.45	-2.75	453	448	1	1	8.36	10.00
9	-2.27	-2.50	457	452	1	1	7.67	9.72
10	-2.11	-2.29	460	456	1	1	7.11	9.00
11	-1.96	-2.10	462	460	1	1	6.65	8.34
12	-1.83	-1.93	465	463	1	1	6.29	7.75
13	-1.70	-1.78	467	466	1	1	6.01	7.23
14	-1.59	-1.64	469	469	1	1	5.80	6.79
15	-1.47	-1.51	472	471	2	2	5.63	6.42
16	-1.37	-1.39	474	473	2	2	5.51	6.12
17	-1.26	-1.27	476	475	2	2	5.42	5.87
18	-1.16	-1.16	478	478	2	2	5.36	5.67
19	-1.06	-1.06	480	480	2	2	5.32	5.51
20	-0.96	-0.95	481	482	2	2	5.30	5.40
21	-0.85	-0.85	483	483	2	2	5.30	5.32
22	-0.75	-0.74	485	485	2	2	5.32	5.28
23	-0.65	-0.64	487	487	2	2	5.37	5.29
24	-0.54	-0.53	489	489	2	2	5.45	5.34
25	-0.43	-0.42	491	492	2	2	5.56	5.44
26	-0.32	-0.30	493	494	2	2	5.70	5.59
27	-0.20	-0.18	496	496	2	2	5.89	5.80
28	-0.07	-0.05	498	499	2	2	6.13	6.07
29	0.06	0.10	501	501	3	3	6.41	6.41
30	0.21	0.25	503	504	3	3	6.76	6.82
31	0.38	0.43	506	507	3	3	7.15	7.30
32	0.55	0.62	510	511	3	3	7.59	7.86
33	0.75	0.84	514	515	3	3	8.03	8.48

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
34	0.97	1.09	518	520	3	3	8.44	9.19
35	1.21	1.38	522	525	3	3	8.80	10.00
36	1.47	1.72	527	532	3	4	9.17	10.00
37	1.75	2.12	532	539	4	4	9.69	10.00
38	2.08	2.63	539	549	4	4	10.00	10.00
39	2.47	3.21	546	560	4	4	10.00	10.00
40	2.98	3.21	556	560	4	4	10.00	10.00
41	3.21	3.21	560	560	4	4	10.00	10.00
42	3.21	3.21	560	560	4	4	10.00	10.00

Table 3.5.3 Raw Score to Scale Score Lookup Table
 ELA Grade 05 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-3.36	-3.37	440	440	1	1	10.00	10.00
1	-3.32	-3.31	441	441	1	1	10.00	10.00
2	-3.28	-3.27	441	441	1	1	10.00	10.00
3	-3.24	-3.24	442	442	1	1	10.00	10.00
4	-3.19	-3.21	443	443	1	1	10.00	10.00
5	-3.15	-3.18	444	443	1	1	10.00	10.00
6	-3.11	-3.15	444	444	1	1	10.00	10.00
7	-3.07	-3.12	445	444	1	1	9.87	9.87
8	-2.80	-3.08	450	445	1	1	8.58	9.67
9	-2.59	-2.90	454	448	1	1	7.73	8.97
10	-2.40	-2.67	457	452	1	1	7.14	8.17
11	-2.24	-2.48	460	456	1	1	6.70	7.64

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
12	-2.09	-2.31	462	458	1	1	6.36	7.25
13	-1.96	-2.16	465	461	1	1	6.02	6.95
14	-1.83	-2.02	467	464	1	1	5.82	6.71
15	-1.71	-1.90	469	466	1	1	5.66	6.51
16	-1.59	-1.78	471	468	2	1	5.62	6.33
17	-1.48	-1.66	473	469	2	1	5.52	6.17
18	-1.37	-1.55	475	472	2	2	5.44	6.03
19	-1.27	-1.44	477	474	2	2	5.38	5.89
20	-1.16	-1.33	479	476	2	2	5.33	5.76
21	-1.05	-1.22	481	478	2	2	5.29	5.64
22	-0.95	-1.11	483	480	2	2	5.27	5.53
23	-0.85	-1.01	484	482	2	2	5.25	5.44
24	-0.74	-0.90	486	483	2	2	5.24	5.36
25	-0.63	-0.79	488	485	2	2	5.25	5.29
26	-0.52	-0.68	490	487	2	2	5.26	5.24
27	-0.41	-0.57	492	489	2	2	5.29	5.22
28	-0.30	-0.45	494	491	2	2	5.35	5.22
29	-0.18	-0.33	496	493	2	2	5.42	5.25
30	-0.06	-0.21	498	496	2	2	5.53	5.32
31	0.07	-0.08	501	498	3	2	5.67	5.44
32	0.21	0.06	503	500	3	3	5.84	5.61
33	0.35	0.21	506	503	3	3	6.04	5.85
34	0.51	0.38	508	506	3	3	6.25	6.15
35	0.67	0.56	511	509	3	3	6.47	6.52
36	0.85	0.76	514	513	3	3	6.67	6.93
37	1.04	0.98	518	517	3	3	6.87	7.39
38	1.25	1.23	521	521	3	3	7.08	7.88
39	1.47	1.51	525	526	3	3	7.36	8.42
40	1.71	1.83	529	532	3	4	7.78	9.05
41	2.00	2.23	535	539	4	4	8.44	9.95

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
42	2.33	2.78	541	548	4	4	9.47	10.00
43	2.77	3.26	548	557	4	4	10.00	10.00
44	3.35	3.43	559	560	4	4	10.00	10.00
45	3.43	3.43	560	560	4	4	10.00	10.00
46	3.43	3.43	560	560	4	4	10.00	10.00

Table 3.5.4 Raw Score to Scale Score Lookup Table
 ELA Grade 06 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-3.17	-3.16	440	440	1	1	10.00	10.00
1	-3.09	-3.08	442	442	1	1	10.00	10.00
2	-3.01	-3.00	443	443	1	1	10.00	10.00
3	-2.93	-2.93	445	445	1	1	10.00	10.00
4	-2.86	-2.86	446	446	1	1	10.00	10.00
5	-2.78	-2.77	448	448	1	1	10.00	10.00
6	-2.48	-2.59	453	451	1	1	8.76	9.70
7	-2.26	-2.37	457	455	1	1	7.74	8.70
8	-2.07	-2.21	461	458	1	1	7.09	8.10
9	-1.91	-2.07	464	461	1	1	6.65	7.64
10	-1.77	-1.93	467	464	1	1	6.33	7.28
11	-1.64	-1.81	469	466	1	1	6.09	7.00
12	-1.52	-1.70	471	468	2	1	5.91	6.76
13	-1.41	-1.59	474	470	2	2	5.76	6.56
14	-1.30	-1.49	476	472	2	2	5.63	6.39
15	-1.19	-1.39	478	474	2	2	5.52	6.24

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
16	-1.09	-1.30	479	476	2	2	5.43	6.09
17	-1.00	-1.20	481	477	2	2	5.35	5.96
18	-0.90	-1.11	483	479	2	2	5.28	5.84
19	-0.81	-1.02	485	481	2	2	5.22	5.73
20	-0.72	-0.93	487	483	2	2	5.16	5.63
21	-0.63	-0.84	488	484	2	2	5.12	5.53
22	-0.54	-0.75	490	486	2	2	5.09	5.45
23	-0.45	-0.66	492	488	2	2	5.08	5.38
24	-0.36	-0.57	493	489	2	2	5.08	5.33
25	-0.27	-0.48	495	491	2	2	5.09	5.29
26	-0.18	-0.39	497	493	2	2	5.13	5.26
27	-0.08	-0.30	499	495	2	2	5.18	5.26
28	0.01	-0.20	500	496	3	2	5.25	5.27
29	0.11	-0.10	502	498	3	2	5.34	5.31
30	0.21	0.00	504	500	3	3	5.44	5.37
31	0.32	0.11	506	502	3	3	5.56	5.44
32	0.43	0.23	508	504	3	3	5.69	5.55
33	0.55	0.35	511	507	3	3	5.82	5.67
34	0.67	0.47	513	509	3	3	5.95	5.81
35	0.80	0.61	515	512	3	3	6.07	5.96
36	0.93	0.75	518	514	3	3	6.18	6.13
37	1.07	0.90	520	517	3	3	6.29	6.32
38	1.21	1.06	523	520	3	3	6.40	6.53
39	1.36	1.24	526	524	3	3	6.55	6.78
40	1.53	1.42	529	527	3	3	6.76	7.09
41	1.70	1.61	533	531	4	4	7.04	7.47
42	1.89	1.84	536	535	4	4	7.41	7.98
43	2.11	2.09	540	540	4	4	7.91	8.62
44	2.36	2.39	545	545	4	4	8.55	9.40
45	2.65	2.73	551	552	4	4	9.42	10.00

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
46	3.02	3.08	557	560	4	4	10.00	10.00
47	3.15	3.08	560	560	4	4	10.00	10.00
48	3.15	3.08	560	560	4	4	10.00	10.00
49	3.15	3.08	560	560	4	4	10.00	10.00

Table 3.5.5 Raw Score to Scale Score Lookup Table
 ELA Grade 07 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-3.13	-3.13	440	440	1	1	10.00	10.00
1	-3.08	-3.09	441	441	1	1	10.00	10.00
2	-3.03	-3.04	442	442	1	1	10.00	10.00
3	-2.98	-3.00	443	442	1	1	10.00	10.00
4	-2.93	-2.96	444	443	1	1	10.00	10.00
5	-2.88	-2.92	445	444	1	1	10.00	10.00
6	-2.83	-2.88	446	445	1	1	10.00	9.88
7	-2.59	-2.80	450	446	1	1	8.57	9.47
8	-2.39	-2.64	454	449	1	1	7.62	8.79
9	-2.23	-2.45	457	453	1	1	6.99	8.14
10	-2.08	-2.30	460	456	1	1	6.55	7.69
11	-1.95	-2.17	463	458	1	1	6.24	7.38
12	-1.83	-2.05	465	461	1	1	6.01	7.13
13	-1.72	-1.94	467	463	1	1	5.84	6.93
14	-1.61	-1.83	469	465	1	1	5.72	6.76
15	-1.51	-1.73	471	467	2	1	5.63	6.61
16	-1.41	-1.63	473	469	2	1	5.56	6.48

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
17	-1.31	-1.54	475	470	2	2	5.51	6.36
18	-1.21	-1.44	477	472	2	2	5.47	6.25
19	-1.12	-1.35	478	474	2	2	5.43	6.14
20	-1.03	-1.25	480	476	2	2	5.40	6.05
21	-0.93	-1.16	482	478	2	2	5.38	5.96
22	-0.84	-1.07	484	479	2	2	5.36	5.88
23	-0.75	-0.97	486	481	2	2	5.36	5.82
24	-0.66	-0.88	487	483	2	2	5.36	5.76
25	-0.56	-0.78	489	485	2	2	5.38	5.71
26	-0.47	-0.68	491	487	2	2	5.40	5.68
27	-0.37	-0.58	493	489	2	2	5.44	5.65
28	-0.27	-0.48	495	491	2	2	5.49	5.64
29	-0.17	-0.38	497	493	2	2	5.55	5.64
30	-0.07	-0.27	498	495	2	2	5.61	5.65
31	0.04	-0.16	501	497	3	2	5.68	5.67
32	0.15	-0.05	503	499	3	2	5.74	5.70
33	0.26	0.07	505	501	3	3	5.80	5.75
34	0.38	0.19	507	503	3	3	5.85	5.82
35	0.50	0.32	509	506	3	3	5.91	5.91
36	0.62	0.46	512	509	3	3	5.97	6.03
37	0.75	0.60	514	511	3	3	6.06	6.18
38	0.89	0.75	517	514	3	3	6.18	6.37
39	1.04	0.91	520	517	3	3	6.35	6.61
40	1.19	1.08	523	520	3	3	6.59	6.92
41	1.36	1.27	526	524	3	3	6.89	7.33
42	1.55	1.49	529	528	3	3	7.29	7.89
43	1.77	1.74	534	533	4	4	7.80	8.64
44	2.01	2.04	538	539	4	4	8.44	9.63
45	2.31	2.39	544	545	4	4	9.24	10.00
46	2.66	2.77	551	553	4	4	10.00	10.00

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
47	3.11	3.13	559	560	4	4	10.00	10.00
48	3.15	3.13	560	560	4	4	10.00	10.00
49	3.15	3.13	560	560	4	4	10.00	10.00

Table 3.5.6 Raw Score to Scale Score Lookup Table
 ELA Grade 08 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-2.96	-2.96	440	440	1	1	9.49	9.49
1	-2.93	-2.93	441	441	1	1	9.27	9.27
2	-2.90	-2.90	441	441	1	1	9.05	9.05
3	-2.86	-2.86	442	442	1	1	8.84	8.84
4	-2.83	-2.83	443	443	1	1	8.64	8.64
5	-2.80	-2.80	443	443	1	1	8.45	8.45
6	-2.76	-2.76	444	444	1	1	8.26	8.26
7	-2.57	-2.57	448	448	1	1	7.29	7.29
8	-2.40	-2.40	451	451	1	1	6.65	6.65
9	-2.26	-2.26	454	454	1	1	6.19	6.19
10	-2.13	-2.13	456	456	1	1	5.86	5.86
11	-2.02	-2.02	459	459	1	1	5.61	5.61
12	-1.91	-1.91	461	461	1	1	5.43	5.43
13	-1.81	-1.81	463	463	1	1	5.29	5.29
14	-1.71	-1.71	465	465	1	1	5.18	5.18
15	-1.61	-1.61	467	467	1	1	5.11	5.11
16	-1.52	-1.52	469	469	1	1	5.07	5.07
17	-1.42	-1.42	471	471	2	2	5.04	5.04

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
18	-1.33	-1.33	472	472	2	2	5.04	5.04
19	-1.24	-1.24	474	474	2	2	5.04	5.04
20	-1.15	-1.15	476	476	2	2	5.06	5.06
21	-1.06	-1.06	478	478	2	2	5.09	5.09
22	-0.96	-0.96	480	480	2	2	5.12	5.12
23	-0.87	-0.87	482	482	2	2	5.17	5.17
24	-0.77	-0.77	484	484	2	2	5.22	5.22
25	-0.68	-0.68	485	485	2	2	5.29	5.29
26	-0.58	-0.58	487	487	2	2	5.38	5.38
27	-0.48	-0.48	489	489	2	2	5.47	5.47
28	-0.37	-0.37	492	492	2	2	5.58	5.58
29	-0.27	-0.27	494	494	2	2	5.70	5.70
30	-0.15	-0.15	496	496	2	2	5.81	5.81
31	-0.04	-0.04	498	498	2	2	5.91	5.91
32	0.08	0.08	501	501	3	3	6.00	6.00
33	0.20	0.20	503	503	3	3	6.07	6.07
34	0.33	0.33	506	506	3	3	6.12	6.12
35	0.46	0.46	508	508	3	3	6.18	6.18
36	0.60	0.60	511	511	3	3	6.27	6.27
37	0.74	0.74	514	514	3	3	6.40	6.40
38	0.89	0.89	517	517	3	3	6.58	6.58
39	1.05	1.05	520	520	3	3	6.84	6.84
40	1.22	1.22	523	523	3	3	7.15	7.15
41	1.41	1.41	527	527	3	3	7.51	7.51
42	1.62	1.62	531	531	4	4	7.91	7.91
43	1.85	1.85	536	536	4	4	8.37	8.37
44	2.11	2.11	541	541	4	4	8.92	8.92
45	2.41	2.41	547	547	4	4	9.52	9.52
46	2.77	2.77	554	554	4	4	10.00	10.00

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
47	3.07	3.07	560	560	4	4	10.00	10.00
48	3.07	3.07	560	560	4	4	10.00	10.00
49	3.07	3.07	560	560	4	4	10.00	10.00

Table 3.5.7 Raw Score to Scale Score Lookup Table
Math Grade 03 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-2.78	-2.78	440	440	1	1	10.00	10.00
1	-2.77	-2.75	440	441	1	1	10.00	10.00
2	-2.75	-2.73	441	441	1	1	10.00	10.00
3	-2.73	-2.71	441	441	1	1	10.00	10.00
4	-2.72	-2.70	441	442	1	1	10.00	10.00
5	-2.70	-2.68	442	442	1	1	10.00	10.00
6	-2.69	-2.64	442	443	1	1	10.00	10.00
7	-2.33	-2.52	450	446	1	1	10.00	10.00
8	-2.08	-2.29	455	450	1	1	9.47	10.00
9	-1.88	-2.09	459	455	1	1	8.37	10.00
10	-1.71	-1.91	463	459	1	1	7.62	9.04
11	-1.56	-1.76	466	462	1	1	7.06	8.25
12	-1.43	-1.62	469	465	1	1	6.64	7.64
13	-1.31	-1.50	471	467	2	1	6.31	7.17
14	-1.20	-1.39	474	469	2	1	6.04	6.78
15	-1.10	-1.29	476	472	2	2	5.83	6.46
16	-1.00	-1.19	478	474	2	2	5.66	6.19
17	-0.91	-1.10	480	476	2	2	5.52	5.97

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
18	-0.82	-1.01	482	478	2	2	5.40	5.79
19	-0.74	-0.92	484	480	2	2	5.30	5.63
20	-0.65	-0.84	485	481	2	2	5.22	5.50
21	-0.57	-0.76	487	483	2	2	5.15	5.39
22	-0.49	-0.68	489	485	2	2	5.10	5.30
23	-0.41	-0.61	491	486	2	2	5.05	5.22
24	-0.34	-0.53	492	488	2	2	5.02	5.15
25	-0.26	-0.45	494	490	2	2	5.00	5.10
26	-0.18	-0.38	495	491	2	2	4.99	5.06
27	-0.11	-0.30	497	493	2	2	4.98	5.02
28	-0.03	-0.23	499	495	2	2	4.99	5.00
29	0.05	-0.15	500	496	3	2	5.00	4.99
30	0.13	-0.07	502	498	3	2	5.03	4.99
31	0.20	0.01	504	499	3	2	5.07	5.00
32	0.29	0.09	506	501	3	3	5.12	5.03
33	0.37	0.17	507	503	3	3	5.18	5.06
34	0.45	0.26	509	505	3	3	5.26	5.11
35	0.54	0.35	511	507	3	3	5.35	5.18
36	0.64	0.44	513	509	3	3	5.47	5.27
37	0.73	0.54	515	511	3	3	5.61	5.38
38	0.84	0.64	517	513	3	3	5.78	5.52
39	0.95	0.75	520	516	3	3	5.99	5.70
40	1.07	0.87	522	518	3	3	6.25	5.92
41	1.20	1.01	525	521	3	3	6.57	6.21
42	1.34	1.16	528	524	3	3	6.98	6.57
43	1.51	1.32	532	528	4	3	7.53	7.06
44	1.71	1.52	536	532	4	4	8.28	7.75
45	1.95	1.77	541	537	4	4	9.42	8.79
46	2.28	2.08	548	544	4	4	10.00	10.00
47	2.83	2.45	560	552	4	4	10.00	10.00
48	2.84	2.83	560	560	4	4	10.00	10.00

Table 3.5.8 Raw Score to Scale Score Lookup Table
Math Grade 04 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-2.81	-2.81	440	440	1	1	10.00	10.00
1	-2.78	-2.78	441	441	1	1	10.00	10.00
2	-2.74	-2.74	441	442	1	1	10.00	10.00
3	-2.71	-2.70	442	442	1	1	10.00	10.00
4	-2.68	-2.67	443	443	1	1	10.00	10.00
5	-2.65	-2.63	443	444	1	1	10.00	10.00
6	-2.61	-2.59	444	445	1	1	10.00	10.00
7	-2.58	-2.56	445	445	1	1	10.00	10.00
8	-2.55	-2.52	446	446	1	1	10.00	10.00
9	-2.31	-2.29	450	451	1	1	9.11	9.48
10	-2.12	-2.09	455	455	1	1	8.32	8.69
11	-1.95	-1.93	458	459	1	1	7.74	8.08
12	-1.80	-1.78	461	462	1	1	7.28	7.60
13	-1.67	-1.64	464	465	1	1	6.92	7.21
14	-1.55	-1.51	466	467	1	1	6.61	6.88
15	-1.43	-1.40	469	469	1	1	6.35	6.60
16	-1.33	-1.29	471	472	2	2	6.12	6.35
17	-1.23	-1.19	473	474	2	2	5.93	6.14
18	-1.13	-1.09	475	476	2	2	5.76	5.95
19	-1.04	-1.00	477	478	2	2	5.61	5.79
20	-0.95	-0.91	479	480	2	2	5.48	5.65
21	-0.86	-0.82	481	482	2	2	5.37	5.52
22	-0.78	-0.74	483	483	2	2	5.28	5.41
23	-0.69	-0.65	484	485	2	2	5.19	5.31
24	-0.61	-0.57	486	487	2	2	5.12	5.23
25	-0.54	-0.49	488	489	2	2	5.07	5.15
26	-0.46	-0.42	489	490	2	2	5.02	5.09
27	-0.38	-0.34	491	492	2	2	4.98	5.04

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
28	-0.30	-0.27	492	493	2	2	4.96	5.00
29	-0.23	-0.19	494	495	2	2	4.94	4.96
30	-0.15	-0.12	496	496	2	2	4.93	4.94
31	-0.08	-0.04	497	498	2	2	4.92	4.92
32	0.00	0.03	499	499	2	2	4.92	4.91
33	0.07	0.10	500	501	3	3	4.93	4.91
34	0.15	0.18	502	503	3	3	4.94	4.91
35	0.23	0.25	504	504	3	3	4.96	4.92
36	0.30	0.33	505	506	3	3	4.97	4.94
37	0.38	0.40	507	507	3	3	5.00	4.96
38	0.46	0.48	509	509	3	3	5.02	4.99
39	0.54	0.56	510	511	3	3	5.05	5.03
40	0.62	0.64	512	512	3	3	5.09	5.08
41	0.71	0.72	514	514	3	3	5.13	5.14
42	0.80	0.81	516	516	3	3	5.20	5.22
43	0.89	0.89	517	518	3	3	5.28	5.31
44	0.98	0.99	519	520	3	3	5.40	5.42
45	1.08	1.08	522	522	3	3	5.55	5.57
46	1.19	1.19	524	524	3	3	5.75	5.75
47	1.31	1.30	526	526	3	3	6.01	6.00
48	1.43	1.43	529	529	3	3	6.35	6.33
49	1.58	1.57	532	532	4	4	6.80	6.80
50	1.75	1.74	536	535	4	4	7.45	7.49
51	1.97	1.95	540	540	4	4	8.43	8.59
52	2.26	2.25	546	546	4	4	10.00	10.00
53	2.75	2.76	556	557	4	4	10.00	10.00
54	2.92	2.92	560	560	4	4	10.00	10.00

Table 3.5.9 Raw Score to Scale Score Lookup Table
Math Grade 05 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-3.13	-3.10	440	440	1	1	10.00	10.00
1	-3.09	-3.03	441	442	1	1	10.00	10.00
2	-3.05	-2.98	442	443	1	1	10.00	10.00
3	-3.01	-2.94	442	444	1	1	10.00	10.00
4	-2.97	-2.90	443	444	1	1	10.00	10.00
5	-2.93	-2.84	444	445	1	1	10.00	10.00
6	-2.89	-2.70	445	448	1	1	10.00	10.00
7	-2.57	-2.52	451	452	1	1	9.91	9.45
8	-2.33	-2.36	455	455	1	1	8.56	8.74
9	-2.13	-2.19	459	458	1	1	7.66	8.09
10	-1.96	-2.03	462	461	1	1	7.04	7.60
11	-1.81	-1.89	465	464	1	1	6.61	7.22
12	-1.68	-1.75	468	466	1	1	6.31	6.93
13	-1.55	-1.63	469	469	1	1	6.10	6.69
14	-1.43	-1.51	472	471	2	2	5.93	6.50
15	-1.32	-1.40	474	473	2	2	5.80	6.33
16	-1.22	-1.29	476	475	2	2	5.69	6.18
17	-1.12	-1.19	478	477	2	2	5.59	6.04
18	-1.02	-1.10	480	479	2	2	5.49	5.91
19	-0.93	-1.00	482	480	2	2	5.41	5.79
20	-0.84	-0.92	484	482	2	2	5.33	5.68
21	-0.75	-0.83	485	484	2	2	5.25	5.58
22	-0.66	-0.74	487	485	2	2	5.19	5.48
23	-0.58	-0.66	488	487	2	2	5.12	5.39
24	-0.50	-0.58	490	488	2	2	5.07	5.30
25	-0.42	-0.50	492	490	2	2	5.01	5.23
26	-0.34	-0.42	493	491	2	2	4.96	5.15
27	-0.26	-0.35	495	493	2	2	4.92	5.09

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
28	-0.18	-0.27	496	494	2	2	4.88	5.03
29	-0.11	-0.20	497	496	2	2	4.84	4.97
30	-0.03	-0.12	499	497	2	2	4.80	4.92
31	0.04	-0.05	500	499	3	2	4.78	4.88
32	0.12	0.02	502	499	3	2	4.75	4.85
33	0.19	0.10	503	501	3	3	4.74	4.82
34	0.27	0.17	505	503	3	3	4.73	4.80
35	0.34	0.25	506	504	3	3	4.73	4.79
36	0.42	0.32	508	506	3	3	4.73	4.78
37	0.50	0.40	509	507	3	3	4.75	4.79
38	0.58	0.48	511	509	3	3	4.78	4.81
39	0.66	0.56	512	510	3	3	4.83	4.84
40	0.74	0.64	514	512	3	3	4.89	4.89
41	0.83	0.72	515	513	3	3	4.96	4.95
42	0.92	0.81	517	515	3	3	5.06	5.03
43	1.01	0.91	519	517	3	3	5.19	5.13
44	1.11	1.00	521	519	3	3	5.34	5.25
45	1.22	1.11	523	521	3	3	5.53	5.41
46	1.33	1.23	525	523	3	3	5.77	5.61
47	1.46	1.36	527	525	3	3	6.05	5.86
48	1.60	1.50	530	528	4	3	6.40	6.20
49	1.76	1.66	533	531	4	4	6.86	6.67
50	1.95	1.86	537	535	4	4	7.50	7.36
51	2.19	2.10	541	539	4	4	8.50	8.45
52	2.51	2.41	547	545	4	4	10.00	10.00
53	3.05	2.86	558	554	4	4	10.00	10.00
54	3.18	3.13	560	560	4	4	10.00	10.00

Table 3.5.10 Raw Score to Scale Score Lookup Table
Math Grade 06 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-3.03	-3.01	440	440	1	1	10.00	10.00
1	-2.98	-2.97	441	441	1	1	10.00	10.00
2	-2.92	-2.92	442	442	1	1	10.00	10.00
3	-2.87	-2.88	443	443	1	1	10.00	10.00
4	-2.82	-2.82	444	444	1	1	10.00	10.00
5	-2.40	-2.43	452	452	1	1	10.00	10.00
6	-2.11	-2.13	458	458	1	1	8.94	9.56
7	-1.89	-1.90	463	462	1	1	7.81	8.43
8	-1.72	-1.72	466	466	1	1	7.03	7.63
9	-1.56	-1.56	469	469	1	1	6.46	7.04
10	-1.43	-1.42	472	472	2	2	6.03	6.58
11	-1.31	-1.30	474	474	2	2	5.70	6.21
12	-1.20	-1.19	476	477	2	2	5.45	5.92
13	-1.10	-1.08	478	479	2	2	5.25	5.68
14	-1.01	-0.99	480	481	2	2	5.09	5.48
15	-0.92	-0.89	482	482	2	2	4.97	5.31
16	-0.83	-0.80	484	484	2	2	4.88	5.16
17	-0.75	-0.72	485	486	2	2	4.81	5.04
18	-0.67	-0.64	487	488	2	2	4.75	4.93
19	-0.59	-0.56	488	489	2	2	4.71	4.84
20	-0.51	-0.48	490	491	2	2	4.68	4.77
21	-0.43	-0.40	492	492	2	2	4.65	4.70
22	-0.36	-0.32	493	494	2	2	4.63	4.65
23	-0.28	-0.25	495	495	2	2	4.62	4.61
24	-0.21	-0.18	496	497	2	2	4.61	4.57
25	-0.14	-0.10	497	498	2	2	4.59	4.54
26	-0.06	-0.03	499	499	2	2	4.58	4.52
27	0.01	0.04	500	501	3	3	4.57	4.50

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
28	0.08	0.11	502	502	3	3	4.56	4.49
29	0.15	0.18	503	504	3	3	4.55	4.48
30	0.22	0.25	505	505	3	3	4.54	4.48
31	0.30	0.32	506	507	3	3	4.53	4.47
32	0.37	0.39	507	508	3	3	4.53	4.48
33	0.44	0.46	509	509	3	3	4.53	4.48
34	0.51	0.53	510	511	3	3	4.53	4.49
35	0.58	0.59	512	512	3	3	4.53	4.50
36	0.65	0.66	513	513	3	3	4.54	4.52
37	0.72	0.73	515	515	3	3	4.56	4.54
38	0.79	0.80	516	516	3	3	4.58	4.57
39	0.87	0.87	517	518	3	3	4.60	4.60
40	0.94	0.94	519	519	3	3	4.64	4.63
41	1.02	1.02	520	520	3	3	4.68	4.67
42	1.10	1.09	522	522	3	3	4.73	4.72
43	1.18	1.17	524	523	3	3	4.79	4.77
44	1.26	1.25	525	525	3	3	4.86	4.82
45	1.35	1.33	527	527	3	3	4.94	4.90
46	1.44	1.41	529	528	3	3	5.05	4.99
47	1.54	1.50	531	530	4	4	5.20	5.11
48	1.65	1.60	533	532	4	4	5.41	5.28
49	1.77	1.71	535	534	4	4	5.73	5.52
50	1.92	1.89	538	538	4	4	6.23	6.09
51	2.10	2.06	542	541	4	4	7.06	6.84
52	2.35	2.25	547	545	4	4	8.62	7.97
53	2.78	2.50	555	550	4	4	10.00	9.84
54	3.01	2.86	560	560	4	4	10.00	10.00

Table 3.5.11 Raw Score to Scale Score Lookup Table
Math Grade 07 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-2.86	-2.84	440	440	1	1	10.00	10.00
1	-2.79	-2.79	442	441	1	1	10.00	10.00
2	-2.71	-2.75	443	442	1	1	10.00	10.00
3	-2.64	-2.70	445	443	1	1	10.00	10.00
4	-2.57	-2.66	446	444	1	1	10.00	10.00
5	-2.17	-2.59	454	446	1	1	10.00	10.00
6	-1.90	-2.16	460	454	1	1	9.03	10.00
7	-1.68	-1.87	464	461	1	1	7.92	9.05
8	-1.51	-1.65	468	465	1	1	7.16	8.01
9	-1.36	-1.48	471	469	2	1	6.60	7.29
10	-1.22	-1.32	474	472	2	2	6.18	6.77
11	-1.10	-1.19	476	475	2	2	5.85	6.38
12	-0.99	-1.07	479	477	2	2	5.59	6.08
13	-0.89	-0.96	481	480	2	2	5.37	5.83
14	-0.80	-0.85	483	482	2	2	5.19	5.63
15	-0.71	-0.75	485	484	2	2	5.04	5.46
16	-0.62	-0.66	486	486	2	2	4.92	5.32
17	-0.54	-0.57	488	487	2	2	4.81	5.19
18	-0.46	-0.49	490	489	2	2	4.72	5.09
19	-0.38	-0.41	491	491	2	2	4.64	5.00
20	-0.31	-0.33	493	492	2	2	4.58	4.92
21	-0.24	-0.25	494	494	2	2	4.52	4.86
22	-0.16	-0.18	496	496	2	2	4.48	4.80
23	-0.09	-0.11	497	497	2	2	4.45	4.76
24	-0.02	-0.03	499	499	2	2	4.42	4.73
25	0.05	0.04	500	500	3	3	4.41	4.71
26	0.12	0.11	502	502	3	3	4.40	4.69
27	0.19	0.18	503	503	3	3	4.40	4.69

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
28	0.26	0.25	505	505	3	3	4.41	4.69
29	0.33	0.32	506	506	3	3	4.43	4.70
30	0.40	0.39	508	508	3	3	4.46	4.71
31	0.47	0.47	509	509	3	3	4.50	4.74
32	0.54	0.54	511	511	3	3	4.54	4.77
33	0.61	0.61	512	512	3	3	4.59	4.80
34	0.68	0.68	514	514	3	3	4.64	4.84
35	0.76	0.76	515	515	3	3	4.71	4.89
36	0.84	0.83	517	517	3	3	4.77	4.95
37	0.91	0.91	518	518	3	3	4.84	5.01
38	0.99	0.99	520	520	3	3	4.92	5.08
39	1.07	1.07	522	522	3	3	5.01	5.17
40	1.16	1.15	523	523	3	3	5.11	5.26
41	1.24	1.24	525	525	3	3	5.22	5.37
42	1.33	1.33	527	527	3	3	5.35	5.50
43	1.42	1.42	529	529	3	3	5.49	5.63
44	1.52	1.51	531	531	4	4	5.65	5.79
45	1.62	1.61	533	533	4	4	5.83	5.96
46	1.73	1.72	535	535	4	4	6.03	6.15
47	1.85	1.84	538	538	4	4	6.26	6.36
48	1.98	1.97	540	540	4	4	6.54	6.61
49	2.12	2.11	543	543	4	4	6.92	6.94
50	2.29	2.28	547	547	4	4	7.50	7.43
51	2.49	2.50	551	551	4	4	8.47	8.31
52	2.77	2.81	557	560	4	4	10.00	10.00
53	2.92	2.81	560	560	4	4	10.00	10.00
54	2.92	2.81	560	560	4	4	10.00	10.00

Table 3.5.12 Raw Score to Scale Score Lookup Table
Math Grade 08 Online and Paper

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
0	-2.98	-2.98	440	440	1	1	10.00	10.00
1	-2.93	-2.92	441	441	1	1	10.00	10.00
2	-2.89	-2.86	442	442	1	1	10.00	10.00
3	-2.84	-2.80	443	444	1	1	10.00	10.00
4	-2.79	-2.74	444	445	1	1	10.00	10.00
5	-2.74	-2.68	445	446	1	1	10.00	10.00
6	-2.69	-2.62	446	447	1	1	10.00	10.00
7	-2.40	-2.30	452	454	1	1	9.81	10.00
8	-2.17	-2.05	456	459	1	1	8.78	9.30
9	-1.98	-1.84	460	463	1	1	7.97	8.16
10	-1.81	-1.67	464	466	1	1	7.32	7.33
11	-1.66	-1.52	467	469	1	1	6.80	6.71
12	-1.53	-1.39	469	472	1	2	6.38	6.25
13	-1.41	-1.27	472	475	2	2	6.05	5.91
14	-1.29	-1.16	474	477	2	2	5.79	5.65
15	-1.19	-1.06	476	479	2	2	5.58	5.46
16	-1.09	-0.96	478	481	2	2	5.42	5.30
17	-0.99	-0.86	480	483	2	2	5.29	5.18
18	-0.90	-0.77	482	485	2	2	5.19	5.07
19	-0.81	-0.69	484	486	2	2	5.10	4.99
20	-0.73	-0.60	486	488	2	2	5.03	4.91
21	-0.64	-0.52	487	490	2	2	4.97	4.85
22	-0.56	-0.44	489	491	2	2	4.91	4.79
23	-0.48	-0.37	490	493	2	2	4.87	4.74
24	-0.40	-0.29	492	494	2	2	4.83	4.70
25	-0.32	-0.22	494	496	2	2	4.79	4.67
26	-0.25	-0.14	495	497	2	2	4.76	4.64
27	-0.17	-0.07	497	499	2	2	4.74	4.62

continued

Raw Score	Theta(O)	Theta(P)	Scale Score(O)	Scale Score(P)	Achievement Level(O)	Achievement Level(P)	CSEM_O	CSEM_P
28	-0.10	0.00	498	500	2	3	4.72	4.61
29	-0.03	0.07	499	502	2	3	4.71	4.60
30	0.05	0.14	501	503	3	3	4.71	4.60
31	0.12	0.21	503	504	3	3	4.71	4.60
32	0.19	0.28	504	506	3	3	4.72	4.61
33	0.26	0.35	505	507	3	3	4.74	4.63
34	0.34	0.42	507	509	3	3	4.76	4.64
35	0.41	0.49	508	510	3	3	4.78	4.67
36	0.49	0.56	510	512	3	3	4.81	4.70
37	0.56	0.64	511	513	3	3	4.85	4.74
38	0.64	0.71	513	515	3	3	4.89	4.78
39	0.72	0.79	515	516	3	3	4.94	4.84
40	0.80	0.87	516	518	3	3	5.00	4.91
41	0.88	0.95	518	519	3	3	5.07	5.00
42	0.97	1.04	520	521	3	3	5.16	5.11
43	1.06	1.13	522	523	3	3	5.27	5.25
44	1.16	1.23	524	525	3	3	5.42	5.43
45	1.27	1.34	526	527	3	3	5.60	5.66
46	1.38	1.46	528	529	3	3	5.84	5.95
47	1.51	1.59	531	532	4	4	6.15	6.34
48	1.65	1.73	533	535	4	4	6.55	6.86
49	1.81	1.91	537	539	4	4	7.11	7.58
50	2.00	2.12	540	543	4	4	7.89	8.61
51	2.24	2.40	545	549	4	4	9.08	10.00
52	2.57	2.78	552	556	4	4	10.00	10.00
53	2.97	2.97	560	560	4	4	10.00	10.00
54	2.97	2.97	560	560	4	4	10.00	10.00

4. Quality Control and Pearson Replication Analyses

Pearson psychometric team performed the replication analyses as the quality control of the psychometric process for spring 2017 test administration. The IRT calibration, mode linking, and mode adjustment analyses were replicated and validated. The comparison results are summarized and presented in the tables on the following pages.

Section 4.1 IRT Calibration Results

Table 4.1.1 IRT Parameter Differences between MP and Pearson for ELA Online

Grade	Difference	A	B	C	B1	B2	B3	B4	B5
3	< 0.05	27	26	27	27	27	27	27	---
	>= 0.05 & < 0.10	0	1	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
4	< 0.05	27	27	27	27	27	27	27	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
5	< 0.05	28	28	28	28	28	28	28	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
6	< 0.05	28	28	28	28	28	28	28	28
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	0
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	0
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	0
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	0
	> 1.00	0	0	0	0	0	0	0	0
7	< 0.05	28	28	28	28	28	28	28	28
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	0
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	0
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	0
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	0
	> 1.00	0	0	0	0	0	0	0	0
8	< 0.05	28	28	28	28	28	28	28	28
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	0
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	0
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	0
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	0
	> 1.00	0	0	0	0	0	0	0	0

Table 4.1.2 IRT Parameter Differences between MP and Pearson for Mathematics Online

Grade	Difference	A	B	C	B1	B2	B3	B4	B5
3	< 0.05	45	45	45	45	45	45	45	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
4	< 0.05	43	42	43	43	43	43	43	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	1	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
5	< 0.05	45	44	45	45	45	45	45	---
	>= 0.05 & < 0.10	0	1	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
6	< 0.05	38	38	39	39	39	39	39	---
	>= 0.05 & < 0.10	1	1	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
7	< 0.05	37	38	38	38	36	38	38	---
	>= 0.05 & < 0.10	1	0	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	2	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
8	< 0.05	36	36	36	36	36	36	36	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---

Table 4.1.3 IRT Parameter Differences between MP and Pearson for ELA Paper

Grade	Difference	A	B	C	B1	B2	B3	B4	B5
3	< 0.05	27	26	27	27	27	27	27	---
	>= 0.05 & < 0.10	0	1	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
4	< 0.05	27	27	27	27	27	27	26	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	1	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
5	< 0.05	28	28	28	28	28	28	28	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	---
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	---
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
6	< 0.05	28	27	28	28	28	28	28	27
	>= 0.05 & < 0.10	0	1	0	0	0	0	0	1
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	0
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	0
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	0
	> 1.00	0	0	0	0	0	0	0	0
7	< 0.05	28	26	28	28	28	28	28	28
	>= 0.05 & < 0.10	0	2	0	0	0	0	0	0
	>= 0.10 & < 0.25	0	0	0	0	0	0	0	0
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	0
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	0
	> 1.00	0	0	0	0	0	0	0	0
8	< 0.05	28	28	28	28	27	28	28	28
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	0
	>= 0.10 & < 0.25	0	0	0	0	1	0	0	0
	>= 0.25 & < 0.50	0	0	0	0	0	0	0	0
	>= 0.50 & < 1.00	0	0	0	0	0	0	0	0
	> 1.00	0	0	0	0	0	0	0	0

Table 4.1.4 IRT Parameter Differences between MP and Pearson for Mathematics Paper

Grade	Difference	A	B	C	B1	B2	B3	B4	B5
3	< 0.05	40	40	40	40	40	40	40	---
	≥ 0.05 & < 0.10	0	0	0	0	0	0	0	---
	≥ 0.10 & < 0.25	0	0	0	0	0	0	0	---
	≥ 0.25 & < 0.50	0	0	0	0	0	0	0	---
	≥ 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
4	< 0.05	39	40	40	40	40	40	40	---
	≥ 0.05 & < 0.10	0	0	0	0	0	0	0	---
	≥ 0.10 & < 0.25	1	0	0	0	0	0	0	---
	≥ 0.25 & < 0.50	0	0	0	0	0	0	0	---
	≥ 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
5	< 0.05	40	40	40	40	40	40	40	---
	≥ 0.05 & < 0.10	0	0	0	0	0	0	0	---
	≥ 0.10 & < 0.25	0	0	0	0	0	0	0	---
	≥ 0.25 & < 0.50	0	0	0	0	0	0	0	---
	≥ 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
6	< 0.05	34	33	34	34	34	34	34	---
	≥ 0.05 & < 0.10	0	1	0	0	0	0	0	---
	≥ 0.10 & < 0.25	0	0	0	0	0	0	0	---
	≥ 0.25 & < 0.50	0	0	0	0	0	0	0	---
	≥ 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
7	< 0.05	34	34	34	34	34	34	34	---
	≥ 0.05 & < 0.10	0	0	0	0	0	0	0	---
	≥ 0.10 & < 0.25	0	0	0	0	0	0	0	---
	≥ 0.25 & < 0.50	0	0	0	0	0	0	0	---
	≥ 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---
8	< 0.05	31	33	34	34	33	33	33	---
	≥ 0.05 & < 0.10	3	1	0	0	1	1	1	---
	≥ 0.10 & < 0.25	0	0	0	0	0	0	0	---
	≥ 0.25 & < 0.50	0	0	0	0	0	0	0	---
	≥ 0.50 & < 1.00	0	0	0	0	0	0	0	---
	> 1.00	0	0	0	0	0	0	0	---

Table 4.1.5 IRT Calibration TCC Differences between Measured Progress and Pearson

Grade	Subject	Mode	TCC Max Difference
3	ELA	Online	0.060
4		Online	0.076
5		Online	0.100
6		Online	0.033
7		Online	0.046
8		Online	0.074
3	MATH	Online	0.182
4		Online	0.202
5		Online	0.219
6		Online	0.290
7		Online	0.217
8		Online	0.067
3	ELA	Paper	0.077
4		Paper	0.109
5		Paper	0.068
6		Paper	0.085
7		Paper	0.061
8		Paper	0.228
3	MATH	Paper	0.135
4		Paper	0.378
5		Paper	0.071
6		Paper	0.231
7		Paper	0.238
8		Paper	0.509

Table 4.1.6 Mode DIF Analysis and Flagged Linking Items

Subject	Grade	BB/Delta Rule	UIN	MP-Z	Removed by MP	Pearson-Z	Removed by Pearson
ELA	3	BB	EL307210	3.007144	Yes	3.01344	Yes
MAT	5	BB	M03557	3.371211	Yes	3.36851	Yes
		BB	VF497453	3.053985	Yes	3.05332	Yes
		Delta	M03557	3.51322	Yes	3.57366	Yes
		Delta	VF497453	3.139455	Yes	3.13392	Yes
	6	BB	MA251263	3.487012	Yes	3.48592	Yes

Table 4.1.7 Final Linking IRT Parameter Differences between MP and Pearson for ELA Paper

Grade	Difference	A	B	C	B1	B2	B3	B4	B5
3	< 0.00001	0	9	27	18	18	22	26	---
	>= 0.0001 & < 0.0001	1	2	0	3	0	0	0	---
	>= 0.0001 & < 0.001	26	16	0	6	9	4	0	---
	>= 0.001 & < 0.01	0	0	0	0	0	1	1	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
4	< 0.00001	0	9	27	18	18	22	26	27
	>= 0.0001 & < 0.0001	0	0	0	0	0	0	0	---
	>= 0.0001 & < 0.001	22	0	0	0	0	3	0	---
	>= 0.001 & < 0.01	5	18	0	9	9	2	1	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
5	< 0.00001	0	10	28	18	18	22	26	---
	>= 0.0001 & < 0.0001	0	0	0	0	0	0	0	---
	>= 0.0001 & < 0.001	0	4	0	0	3	0	0	---
	>= 0.001 & < 0.01	20	10	0	1	6	0	0	---
	>= 0.01 & < 0.05	8	4	0	9	1	6	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	2	---
6	< 0.00001	0	10	28	18	18	22	25	26
	>= 0.0001 & < 0.0001	0	3	0	0	0	0	0	0
	>= 0.0001 & < 0.001	3	9	0	4	9	0	0	0
	>= 0.001 & < 0.01	25	6	0	6	1	6	3	2
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	0
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	0
7	< 0.00001	0	10	28	18	18	22	25	26
	>= 0.0001 & < 0.0001	0	3	0	0	0	0	0	0
	>= 0.0001 & < 0.001	3	9	0	4	9	0	0	0
	>= 0.001 & < 0.01	25	6	0	6	1	6	3	2
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	0
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	0
8	< 0.00001	0	10	28	18	18	22	25	26
	>= 0.0001 & < 0.0001	0	0	0	0	0	0	0	0
	>= 0.0001 & < 0.001	1	0	0	0	0	0	0	0
	>= 0.001 & < 0.01	27	12	0	4	10	6	3	1
	>= 0.01 & < 0.05	0	6	0	6	0	0	0	1
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	0

Table 4.1.8 Final Linking IRT Parameter Differences between MP and Pearson for Mathematics Paper

Grade	Difference	A	B	C	B1	B2	B3	B4	B5
3	< 0.00001	0	6	40	34	34	38	40	---
	>= 0.0001 & < 0.0001	0	4	0	1	0	0	0	---
	>= 0.0001 & < 0.001	39	26	0	4	3	2	0	---
	>= 0.001 & < 0.01	1	4	0	1	3	0	0	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
4	< 0.00001	0	8	40	32	32	36	38	---
	>= 0.0001 & < 0.0001	0	0	0	0	0	0	0	---
	>= 0.0001 & < 0.001	0	9	0	1	1	1	0	---
	>= 0.001 & < 0.01	40	23	0	7	7	3	2	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
5	< 0.00001	0	9	40	32	32	36	38	---
	>= 0.0001 & < 0.0001	0	8	0	1	4	0	0	---
	>= 0.0001 & < 0.001	40	23	0	7	4	4	2	---
	>= 0.001 & < 0.01	0	0	0	0	0	0	0	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
6	< 0.00001	0	10	34	24	24	28	30	---
	>= 0.0001 & < 0.0001	0	1	0	1	1	0	1	---
	>= 0.0001 & < 0.001	32	22	0	7	9	6	3	---
	>= 0.001 & < 0.01	2	1	0	2	0	0	0	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
7	< 0.00001	0	10	34	24	24	28	30	---
	>= 0.0001 & < 0.0001	34	0	0	0	0	0	0	---
	>= 0.0001 & < 0.001	0	24	0	10	10	6	4	---
	>= 0.001 & < 0.01	0	0	0	0	0	0	0	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---
8	< 0.00001	0	11	34	24	24	29	31	---
	>= 0.0001 & < 0.0001	5	10	0	1	5	4	1	---
	>= 0.0001 & < 0.001	29	13	0	9	5	1	2	---
	>= 0.001 & < 0.01	0	0	0	0	0	0	0	---
	>= 0.01 & < 0.05	0	0	0	0	0	0	0	---
	>= 0.05 & < 0.10	0	0	0	0	0	0	0	---

Section 4.2 Mode Linking Results

Table 4.2.1 TCC Differences between Measured Progress and Pearson for Paper Post-Linking

Grade	Subject	TCC Max Difference
3	ELA	0.003207
4		0.030555
5		0.105170
6		0.015936
7		0.057913
8		0.115001
3	MATH	0.007407
4		0.039336
5		0.003913
6		0.008422
7		0.005463
8		0.002586

Section 4.3 Mode Adjustment Results

Table 4.3.1 Mode Adjustment Differences between Measured Progress and Pearson

Grade	Subject	Number of Adjusted Scale Score Differences
		> 0
3	ELA	0
5		0
6		0
7		0
3	MATH	0
5		0
6		0
7		0