6. IRT Item Level Statistics for the 2010 Mod-MSA: Reading

6.1 Rationale for the Use of the Rasch Model

In addition to reporting raw score summary statistics and item level statistics using the classical test theory (CTT), the items on the Mod-MSA: Reading test were also analyzed within the framework of item response theory (IRT). The Rasch model (Rasch, 1960) for dichotomous items was used for developing, scoring, and reporting the Mod-MSA: Reading assessment. These models were recommended for several reasons.

First, the sample size requirements for calibration, scaling, and equating under the Rasch model are significantly smaller than for other IRT models. For example, the Rasch model requires about 400 examinees per form for equating versus approximately 1,500 examinees per form under the 3PL IRT model (Kolen and Brennan, 2004, p. 288). This requirement for the Rasch model was particularly useful since the counts for the Mod-MSA were expected to be low.

Second, for the requirements of the Mod-MSA: Reading program, the Rasch model has one characteristic that makes it very useful. There exists a one-to-one relationship between raw scores and scale scores. That is, a student who answers a certain number of items correctly will receive the same scale score as a second student with the same raw score, regardless of which particular items within the test form were answered correctly.

6.2 Fit Statistics for the Rasch Model

Fit statistics are used for evaluating the goodness-of-fit of a model to the data. They are calculated by comparing the observed and expected trace lines obtained for an item after parameter estimates are obtained using a particular model. WINSTEPS provides two kinds of fit statistics called mean-squares that show the size of the randomness or amount of distortion of the measurement system.

The outfit and the infit statistics are used in order to ascertain the suitability of the data for constructing variables and making measures with the Rasch model. These fit statistics are mean square standardized residuals for item by person responses averaged over persons and partitioned between proficiency groups (outfit) and within proficiency groups (infit). When the observed item characteristic curve (ICC) departs from the expected ICC from a reference value of 1, there is an expectation of high proficiency students failing on an easy item or low proficiency students succeeding on a difficult one. The outfit mean square evaluates the agreement between the observed ICC and the best fitting Rasch model curve over the proficiency sub-groups. It is a standardized outlier-sensitive mean square fit statistic, more sensitive to unexpected behavior by persons on items far from the person's proficiency level. The infit, on the other hand, is a within-group mean square, which summarizes the degree of misfit remaining within proficiency groups after the between-group misfit has been removed from the total. The infit, therefore, is a standardized information-weighted mean square statistic, which is more sensitive to unexpected responses to items near the person's proficiency level.

Outfit mean-squares are influenced by outliers and are usually easy to diagnose and remedy. Infit mean-squares, on the other hand, are influenced by response patterns and are harder to diagnose and remedy. In general, mean-squares near 1.0 indicate little distortion of the measurement system, while values less than 1.0 indicate that observations are too predictable (redundancy,

model overfit). Values greater than 1.0 indicate unpredictability (unmodeled noise, model underfit).

Generally speaking, when item fit indices are lower then 0.5, they do not discriminate well and show greater than expected degree of consistency. Similarly, a fit value higher than 1.5 indicates inconsistency in examinee scores on the item, i.e., some unexpectedly high scores are obtained by low proficiency candidates, and low scores for high proficiency candidates. Linacre and Wright (1999) provide an overall guideline for evaluating mean-square fit statistics (see Table 6.2.1, below).

Table 6.2.1. Criteria to Evaluate Mean-Square Fit Statistics

Mean-Square	Interpretation
> 2.0	Distorts or degrades the measurement system
1.5 – 2.0	Unproductive for construction of measurement, but not degrading
0.5 – 1.5	Productive for measurement
< 0.5	Unproductive for measurement, but not degrading. May produce misleadingly good reliabilities and separations

Note: Adapted from Linacre & Wright, 1999.

In our analysis, items were flagged if they distorted measurements, degraded the measurement system, or were unproductive for measurement, i.e., if the MSQ > 2.0 logits or MSQ < 0.5 logits.

6.3. Rasch Item Level Statistics

Table 6.3.1 to Table 6.3.6 provide both classical and IRT-based item parameters and includes:

- UIN
- Item sequence number
- Item strand number
- N-Count
- Rasch difficulty estimate
- Standard error of the Rasch difficulty (SE)
- Mean-square infit
- Mean-square outfit

Table 6.3.1. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 3

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000213631	1	208	813	-0.9787	0.0822	0.93	0.93
100000360181	2	208	813	1.1187	0.0816	1.00	1.03
100000213633	3	208	813	-1.3842	0.0902	0.84	0.69
100000213634	4	208	813	0.6841	0.0766	0.96	0.96
100000360182	5	208	813	0.4547	0.0751	0.98	0.97
100000101512	6	208	813	0.0840	0.0741	1.02	1.03
100000101513	7	208	813	-0.1360	0.0745	1.02	1.02
100000101514	8	208	813	-0.4404	0.0760	0.93	0.89
100000360183	9	208	813	-0.2249	0.0748	1.02	1.02
100000101516	10	208	813	0.4886	0.0753	1.05	1.07
100000101517	11	208	813	0.9633	0.0795	1.04	1.07
100000101518	12	208	813	-0.1582	0.0745	1.05	1.06
100000360184	13	208	813	0.2103	0.0742	1.04	1.03
100000101969	14	208	813	-0.7516	0.0791	0.86	0.80
100000101970	15	208	813	0.1005	0.0741	0.94	0.94
100000101971	16	209	813	0.5568	0.0757	1.04	1.05
100000101972	17	209	813	0.3097	0.0745	1.10	1.11
100000101973	18	209	813	0.7253	0.0770	1.06	1.11
100000101974	19	209	813	0.4210	0.0749	0.97	0.97
100000101975	20	209	813	0.3541	0.0746	1.09	1.10
100000101932	21	208	813	-0.2753	0.0750	1.00	1.00
100000101934	22	209	813	0.0401	0.0741	0.98	0.99
100000101935	23	209	813	0.5682	0.0758	1.15	1.16
100000101933	24	208	813	0.7312	0.0770	1.03	1.05
100000101936	25	209	813	0.0072	0.0742	1.05	1.03
100000101937	26	209	813	-0.4984	0.0765	0.94	0.92
100000101938	27	209	813	0.2268	0.0743	0.99	0.99
100000346452	28	208	813	-0.3545	0.0754	0.98	0.97
100000346453	29	208	813	-0.2978	0.0751	0.93	0.92
100000346444	30	209	813	0.4042	0.0748	1.01	1.02
100000346446	31	209	813	0.5912	0.0759	1.15	1.17
100000346450	32	209	813	-1.0333	0.0831	0.90	0.80
100000346445	33	209	813	0.2931	0.0744	0.93	0.93
100000346448	34	209	813	0.1499	0.0742	1.01	1.00
100000260458	35	209	813	0.4942	0.0753	1.07	1.10
100000260460	36	209	813	-0.2978	0.0751	1.04	1.04

Table A. 6.3.1. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 3 (Continued)

Item CID	Item Seq. No.[1]	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000260461	37	209	813	-0.1693	0.0746	0.98	1.02
100000312661	38	208	813	-0.2585	0.0749	1.00	0.99
100000260457	39	209	813	0.0511	0.0741	1.06	1.06
100000260459	40	209	813	0.7253	0.0770	1.07	1.09
100000260465	41	208	813	-0.2585	0.0749	1.01	1.00
100000101905	42	208	813	-1.0403	0.0833	0.92	0.85
100000101906	43	208	813	0.5625	0.0757	1.00	1.02
100000101907	44	212	813	0.1883	0.0742	0.97	0.98
100000101908	45	212	813	-0.8661	0.0806	0.85	0.78
100000101909	46	212	813	-0.2417	0.0749	0.93	0.91
100000101910	47	212	813	-0.1582	0.0745	1.16	1.22
100000101911	48	212	813	-0.8211	0.0799	0.92	0.88
100000101529	49	212	813	-1.5996	0.0957	0.89	0.78
100000101530	50	212	813	-0.5632	0.0770	0.88	0.84
100000101531	51	212	813	1.3922	0.0862	1.12	1.28
100000101532	52	212	813	0.2820	0.0744	1.11	1.13
100000101527	53	208	813	-0.3488	0.0754	0.96	0.95
100000101528	54	208	813	0.0017	0.0742	0.96	0.94
100000101533	55	212	813	-0.7956	0.0796	0.96	0.95
100000260338	56	208	813	-0.5513	0.0769	1.02	1.11
100000260342	57	209	813	0.0621	0.0741	0.98	0.97
100000260345	58	212	813	0.9696	0.0796	1.07	1.16
100000365154	59	212	813	0.3708	0.0747	1.02	1.02
100000260349	60	209	813	1.4755	0.0879	1.06	1.17
100000260339	61	212	813	-0.1804	0.0746	0.95	0.92
100000300707	62	208	813	0.5511	0.0756	1.06	1.07
100000260364	63	212	813	0.6665	0.0765	1.17	1.23
100000260368	64	212	813	-0.6775	0.0782	0.93	0.94
100000260371	65	212	813	0.0566	0.0741	1.09	1.09
100000300557	66	212	813	0.5912	0.0759	1.00	1.01
100000260372	67	208	813	-1.0333	0.0831	0.87	0.80
100000260365	68	212	813	-0.9719	0.0821	0.94	0.86
100000300552	69	208	813	-0.5572	0.0770	0.86	0.82

Note: 1. 203, 204 & 205=General Reading, 209=Literary, 212=Informational
2. These analyses are based on the equating sample used with the exclusion criterion.

Table 6.3.2. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 4

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000213644	1	208	967	0.7037	0.0705	1.07	1.11
100000213645	2	208	967	0.0750	0.0677	1.08	1.10
100000213646	3	208	967	0.2075	0.0679	1.10	1.12
100000213647	4	208	967	-0.3436	0.0686	0.95	0.95
100000360190	5	208	967	1.3628	0.0792	1.05	1.20
100000213637	6	208	967	-0.8113	0.0725	0.90	0.85
100000213638	7	208	967	-0.8061	0.0724	0.91	0.87
100000213639	8	208	967	0.6938	0.0704	1.10	1.12
100000360191	9	208	967	0.5962	0.0697	1.00	1.01
100000213641	10	208	967	-1.2995	0.0799	0.91	0.82
100000213642	11	208	967	-0.6477	0.0708	0.90	0.86
100000360192	12	208	967	-1.0009	0.0749	0.89	0.84
100000357134	13	209	967	-0.7234	0.0715	0.95	0.91
100000357132	14	208	967	0.2672	0.0680	1.05	1.06
100000357133	15	208	967	-1.0692	0.0759	0.91	0.84
100000357135	16	209	967	0.3041	0.0681	1.11	1.14
100000357136	17	209	967	-0.2365	0.0682	0.93	0.92
100000357137	18	209	967	-0.2041	0.0681	0.93	0.91
100000357138	19	209	967	0.4532	0.0688	0.99	1.00
100000357106	20	209	967	-0.0254	0.0677	1.07	1.09
100000357104	21	208	967	-0.5981	0.0703	0.92	0.89
100000357107	22	209	967	-0.4096	0.0690	0.94	0.92
100000357105	23	208	967	-0.5150	0.0697	0.96	0.98
100000357108	24	209	967	0.0978	0.0677	0.99	0.98
100000357109	25	209	967	-1.0291	0.0753	0.92	0.87
100000357110	26	209	967	-0.3249	0.0685	1.05	1.07
100000260487	27	209	967	0.4626	0.0688	1.13	1.15
100000260486	28	209	967	1.2707	0.0776	0.97	0.98
100000260483	29	208	967	-0.2411	0.0682	0.99	0.98
100000260481	30	208	967	0.0476	0.0677	0.94	0.93
100000260489	31	209	967	-0.5735	0.0701	0.99	1.02
100000260488	32	209	967	1.2055	0.0765	0.98	1.02
100000260492	33	209	967	1.1306	0.0754	1.05	1.10
100000269896	34	209	967	-0.1489	0.0679	0.97	0.96
100000271197	35	208	967	0.6155	0.0698	0.94	0.93
100000271198	36	208	967	-0.2596	0.0682	0.95	0.93

Item CID	Item Seq. No.[1]	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000269900	37	209	967	0.8244	0.0716	1.07	1.11
100000269897	38	209	967	0.2350	0.0679	1.05	1.06
100000269898	39	209	967	0.4673	0.0688	1.00	1.00
100000269899	40	209	967	0.4156	0.0686	1.01	1.01
100000357097	41	212	967	1.1649	0.0759	1.11	1.17
100000357095	42	208	967	-0.3954	0.0689	0.99	0.97
100000357098	43	212	967	0.8553	0.0720	1.02	1.03
100000462160	44	212	967	0.9548	0.0731	1.16	1.25
100000357100	45	212	967	0.5337	0.0692	1.09	1.10
100000357101	46	212	967	-0.3483	0.0686	1.00	0.97
100000462157	47	208	967	-0.2969	0.0684	0.95	0.94
100000101997	48	208	967	-0.0391	0.0677	1.03	1.03
100000101996	49	212	967	0.3690	0.0684	0.95	0.95
100000101998	50	212	967	0.3411	0.0683	1.04	1.04
100000101999	51	212	967	0.4109	0.0686	1.01	1.03
100000102000	52	212	967	-0.0299	0.0677	1.03	1.03
100000102001	53	212	967	0.1069	0.0677	0.98	0.98
100000200070	54	208	967	0.0020	0.0677	0.97	0.97
100000102025	55	208	967	0.9870	0.0735	1.07	1.12
100000102026	56	208	967	0.3318	0.0682	1.07	1.10
100000102027	57	212	967	-0.0893	0.0678	0.93	0.91
100000102023	58	212	967	0.1846	0.0678	1.00	1.00
100000102024	59	212	967	-0.8166	0.0725	1.01	1.07
100000102028	60	212	967	0.2350	0.0679	0.95	0.94
100000102029	61	212	967	-0.2782	0.0683	0.96	0.96
100000301035	62	208	967	-0.7234	0.0715	0.90	0.86
100000267470	63	208	967	-0.5393	0.0699	0.91	0.87
100000267467	64	212	967	-1.7952	0.0918	0.91	0.75
100000301034	65	212	967	-0.8324	0.0727	0.94	0.94
100000267473	66	212	967	0.0476	0.0677	1.04	1.06
100000267474	67	212	967	-0.0802	0.0678	1.13	1.16
100000267472	68	212	967	-0.4287	0.0691	0.98	0.98

Note: 1. 203, 204 & 205=General Reading, 209=Literary, 212=Informational
2. These analyses are based on the equating sample used with the exclusion criterion.

Table 6.3.3. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 5

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000213650	1	208	1043	-0.7119	0.0682	0.95	0.94
100000213651	2	208	1043	-0.8400	0.0696	0.93	0.94
100000213652	3	208	1043	-0.7919	0.0690	0.96	0.94
100000213653	4	208	1043	-1.0097	0.0718	0.90	0.86
100000360196	5	208	1043	0.5530	0.0663	1.04	1.04
100000213655	6	208	1043	-1.0357	0.0721	0.94	0.89
100000213656	7	208	1043	-1.3124	0.0768	0.88	0.79
100000213657	8	208	1043	-0.8400	0.0696	0.90	0.85
100000213658	9	208	1043	0.0939	0.0646	1.09	1.10
100000213659	10	208	1043	-0.6382	0.0675	0.96	0.93
100000360197	11	208	1043	-0.4994	0.0664	0.94	0.95
100000102095	12	209	1043	-0.0061	0.0646	0.99	0.99
100000102093	13	208	1043	-1.0513	0.0724	0.93	0.88
100000102094	14	208	1043	0.8634	0.0691	0.99	1.00
100000102096	15	209	1043	0.0314	0.0645	1.01	1.02
100000102097	16	209	1043	0.6284	0.0669	1.10	1.14
100000102098	17	209	1043	0.6195	0.0668	1.06	1.10
100000102099	18	209	1043	0.7509	0.0679	1.05	1.08
100000102113	19	209	1043	-0.0061	0.0646	0.93	0.92
100000102111	20	208	1043	-0.8839	0.0701	0.92	0.87
100000102114	21	209	1043	-0.0103	0.0646	0.96	0.95
100000102115	22	209	1043	0.7555	0.0680	0.98	0.98
100000102116	23	209	1043	0.0314	0.0645	0.97	0.96
100000102112	24	208	1043	-0.9637	0.0711	0.95	0.95
100000102117	25	209	1043	0.7096	0.0675	1.10	1.14
100000102104	26	209	1043	-0.0854	0.0646	1.00	0.99
100000102102	27	208	1043	-0.4120	0.0658	1.00	1.01
100000102103	28	208	1043	-0.4599	0.0661	0.99	1.00
100000102105	29	209	1043	0.8587	0.0690	1.07	1.12
100000102106	30	209	1043	-0.6201	0.0673	0.96	0.96
100000102107	31	209	1043	0.8255	0.0687	1.00	1.02
100000102108	32	209	1043	0.4832	0.0659	1.01	1.03
100000102086	33	209	1043	0.6061	0.0667	1.10	1.14
100000102084	34	208	1043	-0.4994	0.0664	1.00	0.99
100000102087	35	209	1043	0.3757	0.0653	1.06	1.07
100000102088	36	209	1043	0.9851	0.0705	1.10	1.11

Table 6.3.3. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 5 (Continued)

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000102089	37	209	1043	1.3313	0.0758	1.13	1.28
100000102085	38	208	1043	-0.1734	0.0648	1.05	1.06
100000102090	39	209	1043	0.5618	0.0664	0.99	0.99
100000102046	40	208	1043	-1.3482	0.0775	0.88	0.78
100000102048	41	212	1043	-0.1734	0.0648	1.03	1.04
100000102049	42	212	1043	0.8208	0.0686	1.09	1.14
100000102050	43	212	1043	-0.8497	0.0697	0.98	0.97
100000102051	44	212	1043	0.1732	0.0647	1.04	1.05
100000102052	45	208	1043	-0.5437	0.0667	0.96	0.96
100000102047	46	212	1043	-0.4511	0.0661	0.93	0.91
100000102056	47	208	1043	0.1816	0.0647	1.03	1.05
100000102058	48	212	1043	1.6502	0.0824	1.11	1.34
100000102059	49	212	1043	-0.3903	0.0657	0.98	0.96
100000102060	50	212	1043	0.6553	0.0671	1.01	1.02
100000102061	51	212	1043	0.0397	0.0645	1.00	1.00
100000102057	52	208	1043	0.5399	0.0662	1.06	1.07
100000102062	53	212	1043	1.1125	0.0723	1.08	1.18
100000102068	54	212	1043	-0.2875	0.0652	0.96	0.95
100000102069	55	212	1043	0.6284	0.0669	0.94	0.95
100000102066	56	208	1043	-0.1356	0.0647	1.03	1.03
100000102067	57	208	1043	-0.7446	0.0685	0.93	0.89
100000102070	58	212	1043	1.2867	0.0750	1.14	1.33
100000102071	59	212	1043	0.1816	0.0647	1.06	1.08
100000102072	60	212	1043	-0.4950	0.0663	0.92	0.89
100000267477	61	212	1043	0.1648	0.0647	0.99	0.98
100000268378	62	212	1043	0.9505	0.0701	0.97	0.98
100000267485	63	208	1043	0.5883	0.0666	0.96	0.95
100000268380	64	212	1043	0.3289	0.0651	0.97	0.96
100000267481	65	212	1043	1.0353	0.0712	1.03	1.05
100000301339	66	208	1043	0.1648	0.0647	1.01	1.02
100000303033	67	212	1043	-0.3602	0.0655	0.91	0.89

Note: 1. 203, 204 & 205=General Reading, 209=Literary, 212=Informational
2. These analyses are based on the equating sample used with the exclusion criterion.

Table 6.3.4. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 6

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000213662	1	208	975	-0.7867	0.0731	0.91	0.88
100000213663	2	208	975	-1.2831	0.0810	0.91	0.82
100000213664	3	208	975	-0.3530	0.0692	1.06	1.08
100000213665	4	208	975	-0.4888	0.0701	0.89	0.86
100000213666	5	208	975	-0.0595	0.0679	1.06	1.07
100000360201	6	208	975	1.7291	0.0846	1.05	1.15
100000213668	7	208	975	-0.5508	0.0707	0.89	0.86
100000213669	8	208	975	1.3285	0.0769	1.00	1.06
100000213670	9	208	975	-0.8831	0.0744	0.82	0.77
100000213671	10	208	975	0.1881	0.0677	1.00	1.00
100000360202	11	208	975	-0.7472	0.0727	0.92	0.92
100000102192	12	209	975	-0.4133	0.0696	0.91	0.88
100000102194	13	209	975	-0.1792	0.0683	1.06	1.08
100000102191	14	208	975	-0.6591	0.0717	0.90	0.87
100000102195	15	209	975	-0.3109	0.0689	1.00	1.02
100000102196	16	209	975	0.2119	0.0677	1.02	1.03
100000102174	17	209	975	0.0695	0.0677	1.09	1.11
100000102175	18	209	975	0.8270	0.0707	1.03	1.12
100000102173	19	208	975	-0.4815	0.0701	0.95	0.94
100000102176	20	209	975	0.4870	0.0684	1.01	1.02
100000102178	21	209	975	0.3073	0.0679	1.07	1.09
100000269999	22	208	975	-1.8723	0.0958	0.89	0.74
100000269997	23	209	975	-0.1412	0.0682	1.01	1.01
100000270006	24	209	975	-0.8600	0.0741	0.90	0.85
100000269998	25	209	975	0.4146	0.0682	1.07	1.11
100000270000	26	208	975	-0.7262	0.0724	0.94	0.90
100000270005	27	209	975	-0.5977	0.0711	0.91	0.88
100000270007	28	209	975	0.3684	0.0680	1.01	1.01
100000270016	29	208	975	1.0636	0.0732	1.12	1.20
100000270018	30	208	975	0.3499	0.0680	1.10	1.14
100000270021	31	209	975	0.6502	0.0693	1.06	1.10
100000270022	32	209	975	0.2809	0.0678	1.18	1.23
100000270023	33	209	975	0.5597	0.0688	1.14	1.16
100000270013	34	209	975	0.5644	0.0688	1.02	1.03
100000270020	35	209	975	0.4193	0.0682	0.99	0.98
100000257087	36	208	975	-1.1007	0.0776	0.95	0.88

Table 6.3.4. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 6 (Continued)

Item CID	Item Seq. No.[1]	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000257088	37	208	975	-0.2438	0.0686	0.91	0.88
100000257113	38	212	975	0.7570	0.0701	1.14	1.22
100000257114	39	212	975	0.4985	0.0685	1.06	1.07
100000257118	40	212	975	-0.6383	0.0715	0.96	0.95
100000257119	41	212	975	-0.3959	0.0695	0.94	0.92
100000257120	42	212	975	0.4892	0.0684	1.06	1.09
100000257102	43	212	975	0.0475	0.0677	0.94	0.93
100000257072	44	208	975	0.8968	0.0713	1.12	1.16
100000257103	45	212	975	0.4193	0.0682	1.08	1.11
100000257104	46	212	975	0.1390	0.0677	1.04	1.05
100000257071	47	208	975	-0.2673	0.0687	0.99	0.97
100000257100	48	212	975	-0.1088	0.0681	0.95	0.94
100000257101	49	212	975	1.0636	0.0732	1.08	1.14
100000102136	50	212	975	-0.5472	0.0706	0.92	0.89
100000102137	51	212	975	0.0153	0.0678	1.06	1.07
100000102139	52	212	975	-0.3179	0.0690	1.13	1.17
100000102140	53	212	975	-0.2517	0.0686	1.10	1.11
100000257081	54	208	975	-1.0121	0.0762	0.94	0.87
100000257110	55	212	975	-0.3336	0.0691	0.96	0.93
100000257083	56	208	975	0.3131	0.0679	0.92	0.89
100000257106	57	212	975	-0.2768	0.0687	0.90	0.89
100000257107	58	212	975	0.6310	0.0692	0.99	0.99
100000257109	59	212	975	-0.1366	0.0681	0.88	0.85
100000257112	60	212	975	-1.5718	0.0874	0.82	0.67

Note: 1. 203, 204 & 205=General Reading, 209=Literary, 212=Informational
2. These analyses are based on the equating sample used with the exclusion criterion.

Table 6.3.5. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 7

Item CID	Item Seq. No.[1]	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000213674	1	208	1158	-0.7780	0.0663	0.90	0.86
100000213675	2	208	1158	-1.3540	0.0744	0.92	0.92
100000213676	3	208	1158	0.8276	0.0655	1.03	1.06
100000360204	4	208	1158	1.0398	0.0677	1.03	1.11
100000213678	5	208	1158	-0.9143	0.0678	0.88	0.85
100000213679	6	208	1158	-0.8469	0.0671	0.92	0.89
100000360205	7	208	1158	0.7509	0.0649	0.95	0.93
100000270578	8	208	1158	-0.4898	0.0639	0.99	0.96
100000270572	9	209	1158	-0.0167	0.0622	1.09	1.11
100000270574	10	209	1158	0.4180	0.0629	0.98	0.99
100000322011	11	209	1158	-0.4939	0.0640	0.98	0.97
100000270580	12	208	1158	-1.5496	0.0783	0.88	0.76
100000270571	13	209	1158	0.6143	0.0639	1.05	1.06
100000270575	14	209	1158	-0.8979	0.0676	0.88	0.82
100000270109	15	209	1158	0.4417	0.0630	1.02	1.01
100000270112	16	209	1158	0.5778	0.0637	1.10	1.15
100000270113	17	208	1158	-0.0321	0.0622	1.03	1.04
100000270114	18	208	1158	-0.2186	0.0626	1.01	1.01
100000270111	19	209	1158	0.4894	0.0632	1.18	1.28
100000270107	20	209	1158	0.8187	0.0654	1.14	1.19
100000270121	21	209	1158	-0.1912	0.0625	0.98	0.97
100000102276	22	209	1158	0.0908	0.0622	1.01	1.01
100000102277	23	209	1158	0.7546	0.0649	1.02	1.04
100000102274	24	208	1158	0.4769	0.0631	1.09	1.12
100000102278	25	209	1158	0.0775	0.0622	0.97	0.96
100000102279	26	209	1158	0.4687	0.0631	1.01	1.03
100000102263	27	208	1158	-0.1197	0.0624	1.00	1.00
100000102267	28	209	1158	0.4089	0.0628	1.12	1.18
100000102268	29	209	1158	0.0297	0.0622	0.94	0.92
100000102269	30	209	1158	0.4035	0.0628	1.03	1.03
100000102266	31	209	1158	0.6886	0.0644	1.04	1.06
100000257181	32	208	1158	-0.6181	0.0649	1.08	1.10
100000257182	33	208	1158	-1.3911	0.0751	0.93	0.88
100000257216	34	212	1158	-0.7990	0.0665	0.93	0.90
100000257218	35	212	1158	-1.2130	0.0720	0.89	0.85
100000257219	36	212	1158	0.1995	0.0623	1.10	1.12

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000257215	37	212	1158	-2.0275	0.0906	0.96	0.86
100000257221	38	212	1158	-0.0708	0.0623	1.05	1.06
100000102244	39	208	1158	-1.6963	0.0816	0.85	0.74
100000102246	40	212	1158	-0.1924	0.0625	1.04	1.04
100000102247	41	212	1158	-1.1534	0.0711	0.85	0.75
100000102248	42	212	1158	0.0244	0.0622	1.09	1.10
100000102245	43	208	1158	-1.3660	0.0746	0.87	0.86
100000102218	44	212	1158	0.1918	0.0622	0.94	0.94
100000102220	45	212	1158	-0.2739	0.0628	0.92	0.91
100000102221	46	212	1158	0.1732	0.0622	0.94	0.93
100000102222	47	212	1158	-0.4429	0.0637	0.99	0.96
100000102217	48	208	1158	-0.5024	0.0640	1.01	1.02
100000257202	49	208	1158	-1.7436	0.0828	0.95	0.86
100000257769	50	212	1158	-0.0747	0.0623	1.10	1.14
100000257770	51	212	1158	0.5174	0.0633	1.07	1.15
100000257773	52	212	1158	-1.0240	0.0692	0.90	0.86
100000322795	53	208	1158	-0.0244	0.0622	1.04	1.04
100000257767	54	212	1158	-0.6519	0.0652	1.01	0.98
100000257772	55	212	1158	0.0451	0.0622	0.94	0.92

Note: 1. 203, 204 & 205=General Reading, 209=Literary, 212=Informational
2. These analyses are based on the equating sample used with the exclusion criterion.

Table 6.3.6. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 8

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000213683	1	208	1268	-1.1648	0.0749	0.92	0.93
100000213684	2	208	1268	-0.4197	0.0634	1.03	1.05
100000360208	3	208	1268	0.7685	0.0595	1.06	1.07
100000213686	4	208	1268	0.4446	0.0589	0.99	0.98
100000213687	5	208	1268	0.0045	0.0601	1.00	1.01
100000213688	6	208	1268	-0.1989	0.0614	0.97	0.96
100000360209	7	208	1268	0.3432	0.0590	0.99	0.98
100000270136	8	209	1268	0.7085	0.0593	1.08	1.10
100000270132	9	209	1268	-1.0472	0.0726	0.96	0.93
100000273591	10	208	1268	0.2316	0.0592	0.97	0.96
100000270131	11	209	1268	0.9731	0.0605	1.00	1.01
100000270135	12	209	1268	0.3501	0.0590	1.00	0.99
100000270137	13	209	1268	0.1296	0.0595	1.04	1.03
100000304610	14	208	1268	1.0504	0.0609	1.04	1.06
100000102331	15	209	1268	-1.3174	0.0784	0.85	0.78
100000102329	16	208	1268	0.2613	0.0591	1.07	1.08
100000102330	17	208	1268	0.0618	0.0598	0.95	0.94
100000102334	18	209	1268	0.3175	0.0590	1.14	1.17
100000102335	19	209	1268	-1.1686	0.0750	0.82	0.74
100000270154	20	209	1268	0.9005	0.0601	1.14	1.17
100000270155	21	209	1268	0.7543	0.0594	1.17	1.20
100000270158	22	209	1268	0.4612	0.0589	1.01	1.01
100000273597	23	208	1268	-0.4749	0.0639	0.95	0.92
100000270163	24	209	1268	0.4577	0.0589	1.00	0.99
100000270159	25	209	1268	-0.8571	0.0692	0.91	0.84
100000273595	26	208	1268	0.8933	0.0600	1.12	1.15
100000102341	27	208	1268	-0.2773	0.0620	0.92	0.88
100000102343	28	209	1268	0.2393	0.0592	1.00	0.99
100000102344	29	209	1268	-0.5397	0.0647	0.99	0.98
100000102346	30	209	1268	0.2686	0.0591	0.92	0.90
100000102345	31	209	1268	-0.0760	0.0605	0.91	0.88
100000257161	32	212	1268	0.3084	0.0590	1.06	1.06
100000302728	33	212	1268	0.8110	0.0596	1.09	1.10
100000257787	34	208	1268	1.0208	0.0608	1.04	1.06
100000257788	35	208	1268	-0.6432	0.0660	0.94	0.87
100000257158	36	212	1268	0.1965	0.0593	0.93	0.92

Table 6.3.6. The 2010 Mod-MSA Reading IRT Item Parameters: Grade 8 (Continued)

Item CID	Item Seq. No.	Item Strand No.	n- Count	Rasch Difficulty	SE	MS Infit	MS Outfit
100000257160	37	212	1268	0.0262	0.0600	0.95	0.93
100000257163	38	212	1268	-0.7049	0.0668	0.94	0.88
100000102320	39	208	1268	-0.9453	0.0707	0.99	0.94
100000102322	40	212	1268	-0.2879	0.0621	1.08	1.12
100000102323	41	212	1268	0.2760	0.0591	1.08	1.09
100000102324	42	212	1268	0.0370	0.0599	0.89	0.88
100000102321	43	208	1268	-0.8923	0.0698	0.98	0.91
100000257139	44	212	1268	1.3316	0.0633	1.10	1.16
100000257140	45	212	1268	-0.5410	0.0647	1.06	1.08
100000257141	46	212	1268	0.5584	0.0590	1.06	1.06
100000257144	47	212	1268	0.0977	0.0597	0.97	0.96
100000257777	48	208	1268	0.6245	0.0591	1.02	1.02
100000302674	49	208	1268	0.1895	0.0593	1.01	1.01
100000302675	50	212	1268	-0.4505	0.0637	0.92	0.86
100000102304	51	212	1268	0.2711	0.0591	1.03	1.03
100000102305	52	212	1268	-0.2458	0.0617	0.95	0.92
100000102302	53	208	1268	0.4618	0.0589	0.95	0.94
100000102307	54	212	1268	-0.3358	0.0625	0.93	0.91
100000102308	55	212	1268	-0.1834	0.0613	0.89	0.85

Note: 1. 203, 204 & 205=General Reading, 209=Literary, 212=Informational
2. These analyses are based on the equating sample used with the exclusion criterion.