

LINKING STUDY:
THE RELATIONSHIP BETWEEN PERFORMANCE
LEVELS ON THE READING PROFICIENCY TESTS
IN ENGLISH AND THE TEXAS ASSESSMENT
OF KNOWLEDGE AND SKILLS

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Background

The purpose of this linking study is to add to the body of validity evidence gathered by the state to examine the relationship between RPTE and TAKS performance levels. The current analyses were used to locate score points on the Reading Proficiency Tests in English (RPTE) scale for each grade that are concordant with the Texas Assessment of Knowledge and Skills (TAKS) “Met Standard” and “Commended Performance” scaled scores. Data analyses were conducted using a common-persons design. Students who tested with both RPTE and TAKS Reading/ELA in the spring of 2005 were used for the analyses.

RPTE and TAKS assess the content standards of the state’s reading curriculum. RPTE is developed for English language learners and assesses reading in a way that takes second language acquisition into account. Each RPTE reading selection and test question is written to reflect one of four levels, or degrees, of linguistic accommodation. The levels of accommodation reflect the diminishing linguistic support that English language learners (ELLs) need as they learn more and more English. Each successive RPTE performance level (Beginning, Intermediate, Advanced, and Advanced High) indicates the ability to demonstrate the state’s reading standards on texts that are less and less linguistically accommodated and more and more like texts written for native English-speaking students. TAKS reading tests, on the other hand, measure the state’s reading content standards without linguistic accommodations for ELLs. Therefore, the TAKS and RPTE tests assess the TEKS curriculum in slightly different ways. As such, care must be taken when making interpretations about statistical links between the two tests.

Sample

Every spring a large percentage of the LEP student population takes both the RPTE and TAKS reading/English language arts tests. These are the students included in this linking study. LEP students who do not take both tests include:

1. LEP students in Grades 3–6 who take TAKS in Spanish rather than English for up to three school years (These students take TAKS in Spanish and RPTE.)

2. LEP students served through special education who qualify to take the State-Developed Alternative Assessment (SDAA II) (These students take SDAA II and RPTE.)
3. a small percentage of recent immigrant LEP students who qualify for a limited English proficiency exemption from TAKS during their first, second, or third school year in the U.S. (These students take RPTE only.)

The mean RPTE raw and scaled scores for each grade are shown in Table 1 below for both the study sample (left portion of the table) and the full LEP population (right portion of the table). As can be seen in the table, the students taking both TAKS in English and RPTE in the same year have higher average scaled scores and raw scores and less variability in scores (i.e., lower score standard deviations) than the full LEP population. The higher average proficiency of these students can be expected to result in more accurate linkings at the higher RPTE scale scores, the range of scores hypothesized to contain the TAKS “Met Standards” and “Commended Performance” levels.

Table 1. Mean Spring 2005 RPTE Raw Scores and Scale Scores for Study Sample and Full LEP Population

Grade	Study Sample			Full LEP Population		
	N	RS (M,SD)	SS(M,SD)	N	RS(M,SD)	SS(M,SD)
3	41,547	48.99(6.05)	746.20(48.99)	77,089	44.65(9.90)	712.97(78.55)
4	25,495	48.94(5.44)	787.25(56.76)	51,871	44.18(9.89)	750.65(76.67)
5	23,638	50.49(4.75)	806.25(57.80)	42,544	46.11(9.48)	769.71(79.21)
6	23,876	49.27(5.83)	801.41(56.82)	36,845	45.57(9.48)	774.06(76.23)
7	16,945	49.11(6.21)	801.52(60.31)	28,617	45.14(9.69)	771.78(75.31)
8	13,885	50.27(5.82)	814.60(61.25)	24,635	46.14(9.56)	781.69(77.45)
9	16,726	48.49(8.33)	790.34(62.28)	31,022	43.86(11.44)	760.78(74.85)
10	12,138	49.92(7.65)	802.22(62.53)	18,296	47.56(9.41)	785.70(69.00)
11	9,530	51.26(6.90)	814.11(61.51)	13,555	49.63(8.61)	802.30(68.26)

Note. The N represents the number of students, RS represents raw scores, M represents mean, SD represents standard deviation, and SS represent scale scores. Grade 12 students are not included in the study because only TAKS exit level retesters take the test again in Grade 12.

Method

Equating, the strongest form of linking, can be established only when two tests 1) measure the same content according to the same test and statistical specifications, 2) target very similar populations, 3) are administered under similar conditions such that the constructs

measured are not differentially affected, 4) share common measurement goals (Kolen & Brennan, 2004), and 5) are equally reliable (Dorans & Holland, 2000). For tests with lesser degrees of similarity, only weaker forms of linking are meaningful, such as calibration, concordance, projection, or moderation (Mislevy, 1992; Linn, 1993; Dorans, 2000; Pommerich, Hanson, Harris, & Sconing, 2004). The linking study here should be interpreted as a concordance analysis rather than a statistical equating.

In order to obtain the RPTE scores most comparable to the TAKS “Met the Standard” and “Commended Performance” scores, the following steps were taken:

1. Reported scaled scores were used to calculate an RPTE ability estimate (θ) and a TAKS ability estimate for each student (θ) by reversing the corresponding θ to scaled score transformations. The transformations are listed below for each TAKS reading/ELA assessment.

Gr 3 Reading SS	$=125.89173(\theta) + 1992.23668$
Gr 4 Reading SS	$=129.42192(\theta) + 1996.07420$
Gr 5 Reading SS	$=155.92516(\theta) + 1954.52183$
Gr 6 Reading SS	$=166.38935(\theta) + 1988.85191$
Gr 7 Reading SS	$=139.08206(\theta) + 1964.53408$
Gr 8 Reading SS	$=153.76730(\theta) + 1948.53921$
Gr 9 Reading SS	$=123.21847(\theta) + 1944.27650$
Gr 10 ELA SS	$= 97.06539(\theta) + 1983.74478$
Gr 11 ELA SS	$=113.48162(\theta) + 2017.62369$

The scale score transformation equation for each RPTE assessment is:

$$\text{RPTE SS} = 48.00(\theta) + 575.00$$

2. A difference is computed as the average TAKS ability estimate subtracted from the average RPTE ability estimate. This difference, or constant, represents a measure of the difference between the two scales.
3. This constant was then subtracted from each RPTE ability estimate to yield an RPTE ability estimate for each student on the TAKS ability scale.

4. The RPTE ability estimates on the TAKS ability scale were then converted to the TAKS scale by applying the TAKS a and b scaling constants.
5. Once the RPTE ability estimates were converted to the TAKS scale, the RPTE raw scores were then associated with the regular RPTE scale scores and RPTE scale scores on the TAKS scale.
6. Since the TAKS proficiency cut point is 2100, the RPTE scale scores on the TAKS scale that were closest to (but not larger than) 2100 and their corresponding raw scores were defined as the most comparable proficiency scores.
7. Similarly, since the TAKS “Commended Performance” cut point is 2400, the RPTE scale scores on the TAKS scale that were closest to (but not larger than) 2400 and their corresponding raw scores were defined as the most comparable “Commended Performance” scores.

Results

Results of this study indicate that for every grade level, points corresponding to the TAKS “Met Standard” and “Commended Performance” levels were able to be located on the RPTE scale. The point on the RPTE scale corresponding to the TAKS “Met Standard” cut was located either within the Advanced or Advanced High proficiency level. For many of the grade levels, the TAKS equivalency score fell near the border between the two levels.

The tables on the following pages show the TAKS reading scaled scores that correspond to each RPTE raw and scaled score. The TAKS “Met Standard” and “Commended” cut scores are in boldface type for each grade. For example, at grade 3, an RPTE raw score of 45 and scaled score of 695 is most comparable to a TAKS reading “Met Standard” cut score of 2100.

Conclusions

These results add to the state's existing body of validity evidence about the statistical relationship between the RPTE and TAKS performance levels. The fact that these scores are near the Advanced/Advanced High RPTE cuts is consistent with the fact that RPTE reading materials written for the Advanced and Advanced High levels of the test have the fewest linguistic accommodations and are most like reading materials written for native English speakers.

The findings from this study provide additional statistical evidence of the relationship between RPTE and TAKS. In conjunction with this study, the analyses below help inform policy questions about the use of RPTE as an Adequate Yearly Progress (AYP) measure for immigrant students during their initial years in U.S. schools.

- Analyses A, B, and C (relating to the RPTE incremental progress AYP standard) in Appendix 26 of the 2004-2005 Technical Digest
- TAKS Scale Score Performance by RPTE Proficiency Rating for Students Who Participated in Both Assessments (Chapter 4 of the 2003-2004, 2004-2005, and 2005-2006 Technical Digest)

References

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- Pommerich, M., Hanson, B. A., Harris, D. J., & Sconing, J. A. (2004). Issues in conducting linkages between distinct tests. Applied Psychological Measurement, 28, 247-273.

Grade 3 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
0	316	1087	Beginning	.	
2	400	1307	Beginning	.	
8	480	1517	Beginning	.	
10	496	1559	Beginning	.	
11	503	1578	Beginning	.	
12	510	1596	Beginning	.	
13	517	1614	Beginning	.	
14	523	1630	Beginning	.	
15	529	1646	Beginning	.	
16	535	1662	Beginning	.	
17	541	1677	Beginning	.	
18	546	1690	Beginning	.	
19	552	1706	Beginning	.	
20	558	1722	Beginning	.	
21	563	1735	Beginning	.	
22	568	1748	Beginning	.	
23	574	1764	Beginning	.	
24	579	1777	Beginning	.	
25	584	1790	Beginning	.	
26	589	1803	Beginning	.	
27	595	1819	Beginning	.	
28	600	1832	Beginning	.	
29	605	1845	Beginning	.	
30	610	1858	Beginning	.	
31	615	1871	Beginning	.	
32	620	1884	Intermediate	.	
33	626	1900	Intermediate	.	
34	631	1913	Intermediate	.	
35	636	1926	Intermediate	.	
36	641	1940	Intermediate	.	
37	647	1955	Intermediate	.	
38	652	1968	Intermediate	.	
39	658	1984	Intermediate	.	
40	664	2000	Intermediate	.	
41	670	2016	Intermediate	.	
42	676	2031	Intermediate	.	
43	682	2047	Advanced	.	
44	688	2063	Advanced	.	
45	695	2081	Advanced	2100	Met Std
46	703	2102	Advanced	.	
47	710	2121	Advanced	.	
48	719	2144	Advanced	.	
49	728	2168	Advanced High	.	
50	738	2194	Advanced High	.	
51	749	2223	Advanced High	.	
52	763	2260	Advanced High	.	
53	780	2304	Advanced High	.	
54	802	2362	Advanced High	2400	Commended
55	838	2456	Advanced High	.	
56	888	2587	Advanced High	.	

Grade 4 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
0	341	919	Beginning	.	
7	503	1355	Beginning	.	
11	538	1450	Beginning	.	
12	545	1469	Beginning	.	
13	552	1488	Beginning	.	
14	559	1506	Beginning	.	
15	566	1525	Beginning	.	
16	572	1541	Beginning	.	
17	578	1558	Beginning	.	
18	584	1574	Beginning	.	
19	590	1590	Beginning	.	
20	596	1606	Beginning	.	
21	602	1622	Beginning	.	
22	608	1639	Beginning	.	
23	613	1652	Beginning	.	
24	619	1668	Beginning	.	
25	624	1682	Beginning	.	
26	629	1695	Beginning	.	
27	635	1711	Beginning	.	
28	640	1725	Beginning	.	
29	646	1741	Beginning	.	
30	651	1754	Beginning	.	
31	656	1768	Beginning	.	
32	662	1784	Intermediate	.	
33	667	1798	Intermediate	.	
34	672	1811	Intermediate	.	
35	678	1827	Intermediate	.	
36	684	1843	Intermediate	.	
37	689	1857	Intermediate	.	
38	695	1873	Intermediate	.	
39	701	1889	Intermediate	.	
40	707	1905	Intermediate	.	
41	713	1922	Intermediate	.	
42	720	1941	Advanced	.	
43	726	1957	Advanced	.	
44	733	1976	Advanced	.	
45	740	1994	Advanced	.	
46	748	2016	Advanced	.	
47	756	2038	Advanced	.	
48	765	2062	Advanced	.	
49	774	2086	Advanced	2100	Met Std
50	784	2113	Advanced	.	
51	790	2129	Advanced High	.	
52	810	2183	Advanced High	.	
53	826	2226	Advanced High	.	
54	849	2288	Advanced High	.	
55	885	2385	Advanced High	2400	Commended
56	934	2518	Advanced High	.	

Grade 5 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
0	341	534	Beginning	.	
12	545	1197	Beginning	.	
16	572	1284	Beginning	.	
17	578	1304	Beginning	.	
18	584	1323	Beginning	.	
19	590	1343	Beginning	.	
20	596	1362	Beginning	.	
21	602	1382	Beginning	.	
22	608	1401	Beginning	.	
23	613	1418	Beginning	.	
24	619	1437	Beginning	.	
25	624	1453	Beginning	.	
26	629	1470	Beginning	.	
27	635	1489	Beginning	.	
28	640	1505	Beginning	.	
29	646	1525	Beginning	.	
30	651	1541	Intermediate	.	
31	656	1557	Intermediate	.	
32	662	1577	Intermediate	.	
33	667	1593	Intermediate	.	
34	672	1609	Intermediate	.	
35	678	1629	Intermediate	.	
36	684	1648	Intermediate	.	
37	689	1664	Intermediate	.	
38	695	1684	Intermediate	.	
39	701	1703	Intermediate	.	
40	707	1723	Advanced	.	
41	713	1742	Advanced	.	
42	720	1765	Advanced	.	
43	726	1785	Advanced	.	
44	733	1807	Advanced	.	
45	740	1830	Advanced	.	
46	748	1856	Advanced	.	
47	756	1882	Advanced	.	
48	765	1911	Advanced	.	
49	774	1941	Advanced High	.	
50	784	1973	Advanced High	.	
51	790	1993	Advanced High	.	
52	810	2058	Advanced High	2100	Met Std
53	826	2109	Advanced High	.	
54	849	2184	Advanced High	.	
55	885	2301	Advanced High	2400	Commended
56	934	2460	Advanced High	.	

Grade 6 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
0	357	544	Beginning		
3	466	922	Beginning		
7	521	1112	Beginning		
9	539	1175	Beginning		
11	555	1230	Beginning		
12	563	1258	Beginning		
13	570	1282	Beginning		
14	576	1303	Beginning		
15	583	1327	Beginning		
16	589	1348	Beginning		
17	595	1369	Beginning		
18	601	1390	Beginning		
19	607	1411	Beginning		
20	613	1431	Beginning		
21	619	1452	Beginning		
22	625	1473	Beginning		
23	630	1490	Beginning		
24	636	1511	Beginning		
25	641	1528	Beginning		
26	646	1546	Beginning		
27	652	1567	Beginning		
28	657	1584	Beginning		
29	663	1605	Beginning		
30	668	1622	Intermediate		
31	673	1639	Intermediate		
32	679	1660	Intermediate		
33	684	1677	Intermediate		
34	689	1695	Intermediate		
35	695	1716	Intermediate		
36	700	1733	Intermediate		
37	706	1754	Intermediate		
38	712	1775	Intermediate		
39	717	1792	Intermediate		
40	723	1813	Advanced		
41	729	1833	Advanced		
42	735	1854	Advanced		
43	741	1875	Advanced		
44	748	1899	Advanced		
45	755	1924	Advanced		
46	762	1948	Advanced		
47	769	1972	Advanced		
48	777	2000	Advanced		
49	785	2028	Advanced		
50	794	2059	Advanced		
51	804	2093	Advanced	2100	Met Std
52	816	2135	Advanced High		
53	829	2180	Advanced High		
54	845	2236	Advanced High		
55	867	2312	Advanced High	2400	Commended
56	903	2437	Advanced High		
57	952	2606	Advanced High		

Grade 8 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
0	357	539	Beginning		
2	443	814	Beginning		
7	521	1064	Beginning		
12	563	1199	Beginning		
14	576	1241	Beginning		
16	589	1282	Beginning		
17	595	1301	Beginning		
18	601	1321	Beginning		
19	607	1340	Beginning		
20	613	1359	Beginning		
21	619	1378	Beginning		
22	625	1398	Beginning		
23	630	1414	Beginning		
24	636	1433	Beginning		
25	641	1449	Beginning		
26	646	1465	Beginning		
27	652	1484	Beginning		
28	657	1500	Beginning		
29	663	1519	Beginning		
30	668	1535	Intermediate		
31	673	1551	Intermediate		
32	679	1571	Intermediate		
33	684	1587	Intermediate		
34	689	1603	Intermediate		
35	695	1622	Intermediate		
36	700	1638	Intermediate		
37	706	1657	Intermediate		
38	712	1676	Intermediate		
39	717	1692	Intermediate		
40	723	1711	Advanced		
41	729	1731	Advanced		
42	735	1750	Advanced		
43	741	1769	Advanced		
44	748	1792	Advanced		
45	755	1814	Advanced		
46	762	1836	Advanced		
47	769	1859	Advanced		
48	777	1884	Advanced		
49	785	1910	Advanced		
50	794	1939	Advanced		
51	804	1971	Advanced		
52	816	2009	Advanced High		
53	829	2051	Advanced High	2100	Met Std
54	845	2102	Advanced High		
55	867	2173	Advanced High		
56	903	2288	Advanced High	2400	Commended
57	952	2445	Advanced High		

Grade 9 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
0	387	982	Beginning		
6	534	1359	Beginning		
10	568	1446	Beginning		
11	575	1464	Beginning		
12	581	1480	Beginning		
13	588	1498	Beginning		
14	594	1513	Beginning		
15	600	1528	Beginning		
16	606	1544	Beginning		
17	611	1557	Beginning		
18	616	1569	Beginning		
19	622	1585	Beginning		
20	627	1598	Beginning		
21	632	1611	Beginning		
22	637	1623	Beginning		
23	642	1636	Beginning		
24	647	1649	Beginning		
25	652	1662	Beginning		
26	657	1675	Beginning		
27	662	1688	Beginning		
28	667	1700	Beginning		
29	671	1711	Beginning		
30	676	1723	Beginning		
31	681	1736	Beginning		
32	686	1749	Beginning		
33	691	1762	Beginning		
34	696	1775	Intermediate		
35	701	1788	Intermediate		
36	706	1801	Intermediate		
37	711	1813	Intermediate		
38	716	1826	Intermediate		
39	721	1839	Intermediate		
40	726	1852	Intermediate		
41	732	1867	Intermediate		
42	737	1880	Intermediate		
43	743	1895	Intermediate		
44	749	1911	Advanced		
45	755	1926	Advanced		
46	761	1942	Advanced		
47	768	1960	Advanced		
48	774	1975	Advanced		
49	781	1993	Advanced		
50	789	2014	Advanced		
51	797	2034	Advanced		
52	805	2055	Advanced		
53	815	2080	Advanced	2100	Met Std
54	825	2106	Advanced		
55	830	2119	Advanced High		
56	850	2170	Advanced High		
57	867	2214	Advanced High		
58	889	2270	Advanced High		
59	925	2363	Advanced High	2400	Commended
60	974	2488	Advanced High		

Grade 10 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
0	387	1196	Beginning		
9	560	1546	Beginning		
10	568	1562	Beginning		
11	575	1576	Beginning		
12	581	1588	Beginning		
13	588	1603	Beginning		
15	600	1627	Beginning		
16	606	1639	Beginning		
17	611	1649	Beginning		
18	616	1659	Beginning		
19	622	1671	Beginning		
20	627	1681	Beginning		
21	632	1692	Beginning		
22	637	1702	Beginning		
23	642	1712	Beginning		
24	647	1722	Beginning		
25	652	1732	Beginning		
26	657	1742	Beginning		
27	662	1752	Beginning		
28	667	1762	Beginning		
29	671	1770	Beginning		
30	676	1781	Beginning		
31	681	1791	Beginning		
32	686	1801	Beginning		
33	691	1811	Beginning		
34	696	1821	Intermediate		
35	701	1831	Intermediate		
36	706	1841	Intermediate		
37	711	1851	Intermediate		
38	716	1861	Intermediate		
39	721	1872	Intermediate		
40	726	1882	Intermediate		
41	732	1894	Intermediate		
42	737	1904	Intermediate		
43	743	1916	Intermediate		
44	749	1928	Advanced		
45	755	1940	Advanced		
46	761	1952	Advanced		
47	768	1967	Advanced		
48	774	1979	Advanced		
49	781	1993	Advanced		
50	789	2009	Advanced		
51	797	2025	Advanced		
52	805	2041	Advanced		
53	815	2062	Advanced		
54	825	2082	Advanced	2100	Met Std
55	830	2092	Advanced High		
56	850	2132	Advanced High		
57	867	2167	Advanced High		
58	889	2211	Advanced High		
59	925	2284	Advanced High		
60	974	2383	Advanced High	2400	Commended

Grade 11 Results					
RPTE Raw Score	RPTE Scale Score	RPTE Scale Score on TAKS Scale	RPTE Proficiency Level	Rounded Cut Score	TAKS Proficiency Level
10	568	1487	Beginning		
11	575	1504	Beginning		
13	588	1534	Beginning		
14	594	1549	Beginning		
15	600	1563	Beginning		
16	606	1577	Beginning		
17	611	1589	Beginning		
18	616	1601	Beginning		
19	622	1615	Beginning		
20	627	1627	Beginning		
21	632	1638	Beginning		
22	637	1650	Beginning		
23	642	1662	Beginning		
24	647	1674	Beginning		
25	652	1686	Beginning		
26	657	1698	Beginning		
27	662	1709	Beginning		
28	667	1721	Beginning		
29	671	1731	Beginning		
30	676	1742	Beginning		
31	681	1754	Beginning		
32	686	1766	Beginning		
33	691	1778	Beginning		
34	696	1790	Intermediate		
35	701	1802	Intermediate		
36	706	1813	Intermediate		
37	711	1825	Intermediate		
38	716	1837	Intermediate		
39	721	1849	Intermediate		
40	726	1861	Intermediate		
41	732	1875	Intermediate		
42	737	1887	Intermediate		
43	743	1901	Intermediate		
44	749	1915	Advanced		
45	755	1929	Advanced		
46	761	1943	Advanced		
47	768	1960	Advanced		
48	774	1974	Advanced		
49	781	1991	Advanced		
50	789	2010	Advanced		
51	797	2029	Advanced		
52	805	2047	Advanced		
53	815	2071	Advanced		
54	825	2095	Advanced	2100	Met Std
55	830	2107	Advanced High		
56	850	2154	Advanced High		
57	867	2194	Advanced High		
58	889	2246	Advanced High		
59	925	2331	Advanced High	2400	Commended
60	974	2447	Advanced High		