

KERA UPDATE

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#4R

Statistical Correlations Between KIRIS and Other Tests Commonly Taken by Kentucky Students *What do these really prove?*

Over the past few years, the Kentucky Department of Education has provided only limited information about how KIRIS results compared to other tests. In fact, a considerable amount of the information released publicly has included little more than a statistical calculation of the “correlation” of scores between the KIRIS test and several other tests. While these numbers are interesting, and do have some value, it is even more important to understand what these correlations do not show.

Take a look at Table 1. This shows that 10 students took 5 different tests. They got identical scores on Tests 1 and 2a. Then, student performance uniformly falls on Test 2b, and it falls uniformly again on Test 2c and 2d. The average scores on the test 2 series also fall uniformly, and rather sharply — well over 2 full points from a 5.5 on Test 2a to just 3.1 on Test 2d.

Now, look at the “correlations” for Test 1 as compared to Tests 2a through 2d. Notice there is hardly any change. That is because the best student is still the best, the weakest still the weakest (although there are increasingly more students with a 1 point score on test 2b to 2d).

In fact, for social sciences, these correlation figures (all well above +0.9) would be considered very impressive, even the figure for Test 2d.

Of course, while the correlations remained high, it is very apparent that overall student performance has fallen dramatically from Test 2a to Test 2d. So, high correlations mean that the best students do the best on both tests; but, citing only

correlations in a report about these tests hides the fact that actual student performance is falling dramatically on the Test 2 series.

Lets tie that to the KIRIS test and other tests such as the ACT and National Assessment of Education Progress.

Table 2 shows actual correlations that have been computed for KIRIS and several other tests. Figure 1 shows the

Table 1
Comparison of Sample Test Scores, Averages and Correlations

Student	Test 1	Test 2a	Test 2b	Test 2c	Test 2d
1	1	1	1	1	1
2	2	2	1	1	1
3	3	3	2	1	1
4	4	4	3	2	1
5	5	5	4	3	2
6	6	6	5	4	3
7	7	7	6	5	4
8	8	8	7	6	5
9	9	9	8	7	6
10	10	10	9	8	7
Average	5.5	5.5	4.6	3.8	3.1
Correlation to Test 1		1	0.995591	0.98193	0.956541

best available information on how CTBS scores actually changed in Kentucky for roughly the same time period. Notice the **high correlations from CTBS to KIRIS are not reflected in the trends in average CTBS scores.** The CTBS actually declined, while KIRIS rose dramatically.

Table 3 shows actual scores and changes on KIRIS and ACT for 1991-92 and 1993-94. Notice, in particular, that **the relatively high 0.75 correlation between ACT Math and KIRIS Math in Table 2 does not match the actual average score results.** KIRIS math scores improved for 12th Grade students while the ACT scores fell. Thus, **there is a negative correspondence between results on these tests, not a high positive "correlation".**

So, citing statistical correlations between KIRIS and other tests may have some value; but, **it is potentially very misleading to provide only correlations without also including information about test averages and trends over several years of testing.**

It is unfortunate that KDE never publicly released anything but correlations from the 1993 and 1994 comparison study of ACT and KIRIS. This is especially so as ACT did provide studies for both those years to KDE.

Also, KDE has released very little information about score averages and trends for other important tests like the SAT, PSAT, and CTBS.

It is obvious that concerned citizens and legislators need better information about our reform. Providing only correlations simply isn't sufficient.

Surely, we can do better!

Figure 1

Kentucky's Mean CAT-5 NCE Scores
From
Kentucky School Advocate, October, 1995
Kentucky School Boards Association

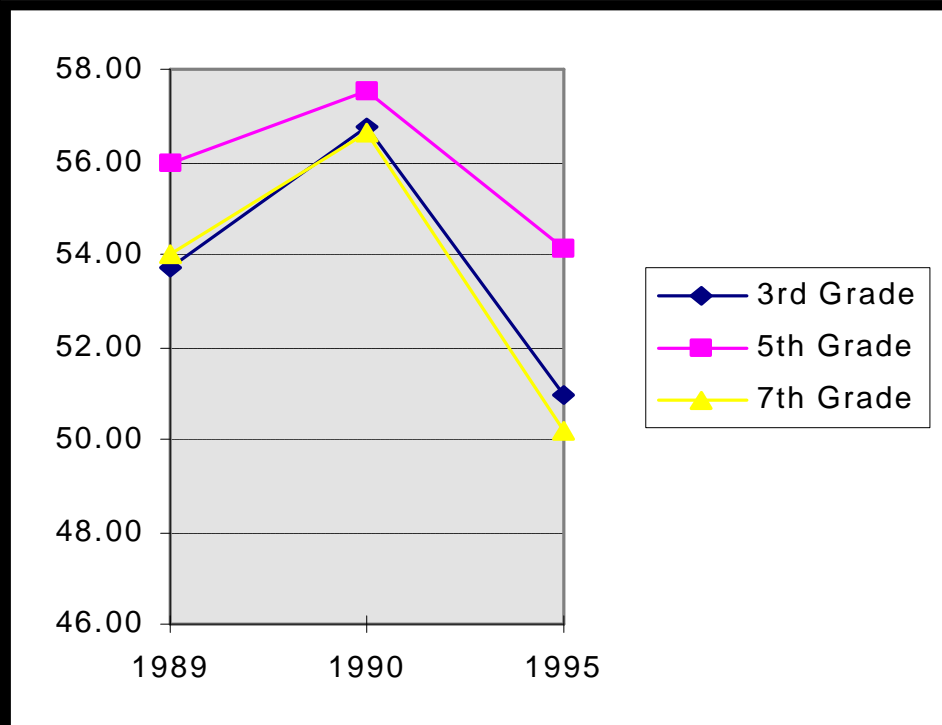


Table 2

Correlations Cited by the Kentucky Department of Education in the August 1994 Kentucky Teacher and reported in KY Office Of Education Accountability's Review of the Measurement Quality of the KY Instructional Results Information System, 1991-1994

(All for 1992-93 School Year)

Grade	NAEP Math	CTBS Math	CTBS Read	ACT Read	ACT Math
4	.72	.77	.86		
8	.63	.86	.63		
12	.81			.59	.75

Table 3

Actual Scores on KIRIS and ACT for 1991-92 and 1993-94 from KY Office Of Education Accountability's Review of the Measurement Quality of the KY Instructional Results Information System, 1991-1994

(Change Scores Include Rounding Error)

Assessment	91-92	93-94	Raw Change	Stand. Change
KIRIS READ	40.3	49.5	+9.2	+0.26
ACT READ	20.5	20.6	+0.11	+0.02
KIRIS MATH	38.2	53.2	+14.9	+0.36
ACT MATH	19.1	19.0	-0.07	-0.02