

Improving Student Achievement in Jeffco: An Update

Jeffco's goal is to graduate students who are career and college ready. Taxpayers have invested heavily to achieve that goal: The most recent data show that Jeffco's total revenue is about \$11,000 per student per year; this means that on average we invest \$126,500 in each Jeffco student over the course of their education in grades K-11 (with kindergarten counted at \$5,500).

Unfortunately, taxpayers -- not to mention students and their parents -- have been earning a very disappointing return on this investment.

Every student in Colorado takes the ACT test in eleventh grade. It is the last comprehensive measure we have of the cumulative result of the taxpayers' investment in twelve years (K-11) of their education. In 2015, only 44% of Jeffco students met the ACT's "college and career ready" (C&C) standard in reading, only 44% in math, and only 40% in science. Between 2008 and 2015, over 27,000 Jeffco 11th graders have failed to meet the C&C standard in reading, over 28,000 have failed to meet the math standard, and over 34,000 have failed to meet the science standard.

Among Jeffco students eligible for free and reduced lunch (FRL), just 24% met the C&C reading standard, 20% met the math standard, and 18% met the science standard. However, only 50% of non-FRL eligible students met the C&C reading standard, 54% met the math standard, and 47% met the science standard.

Thanks to globalization and the rapidly advancing capabilities of technology, our children will have to make their living in an intensely competitive and highly uncertain world that puts an increasingly high premium on their cognitive abilities. If they aren't graduating college and career ready, they're going to struggle for years.

Since they took office in December 2013, new board members Ken Witt, John Newkirk, and Julie Williams have supported a significant number changes to improve student achievement in Jeffco. These include establishing measurable achievement improvement goals, approving a new math curriculum, making free full day kindergarten available to every student who is eligible for free and reduced lunch, increasing additional school funding per FRL student from \$150 to \$850, strengthening local control and accountability by giving principals more authority over their budgets, increasing the rigor of program evaluations to ensure taxpayers are getting value for money, raising pay for starting teachers to attract more talent, basing teacher pay raises on performance rather than seniority, switching to new assessments that provide much faster feedback, and revitalizing School Accountability Committees, which give parents and business leaders a strong voice on achievement improvement issues.

An obvious question to ask is whether these changes are having any observable impact.

It is important to put the nature of the student achievement challenge into context. Specifically, research has shown how hard it is to catch students up to meet the college and career ready standard once they have fallen behind in elementary school.

In "*The Forgotten Middle*" the ACT organization found that "the level of academic achievement that students attain by eighth grade has a larger impact on college and career readiness by the time they graduate than anything that happens academically in high school."

In "*Shining a Light on College Remediation in Colorado*", the Colorado Department of Education concluded that, "if students are not proficient on state assessments by sixth grade, they are likely to require remediation in their first year of college." (And I don't need to tell you about the low success rate of those remediation courses, or the extra cost burden they impose on students and their parents).

Finally, in "*Catching Up to College and Career Readiness*", the ACT organization shows how incredibly difficult it is for students to catch up from significant (one standard deviation) proficiency deficits by the time they graduate, even when those deficits are identified as early as fourth grade.

This body of research highlights two critical points. First, improving Jeffco's college and career ready results is a multiyear challenge. Second, a key focus must elementary school results, as that is where the long-term improvement battle will be won or lost.

From this perspective, the early results from the multiple achievement improvement initiatives underway in Jeffco are very encouraging. To measure achievement gains from the beginning to the end of the school year, Jeffco has historically used the ACUITY assessment. Starting in the 2015-2016 school year, it is being replaced by NWEA's

MAP assessment, which provides feedback to teachers much more rapidly (e.g., same or next day), which should enable much more effective achievement improvement interventions to address each student’s challenge areas.

The following table shows Jeffco’s 2014-2015 school year results on the ACUITY test, for both students eligible for free and reduced lunch eligible (FRL) and not eligible (NonFRL) students. These results are specified in terms of Effect Sizes, which is a means of standardizing achievement improvements to make them comparable across different assessments (technically, an Effect Size measures the gain in terms of standard deviations). Critically, the table compares these Jeffco Effect Sizes to the Colorado Acuity assessment Effect Size benchmarks published by McGraw-Hill. As you can see, during the 2014-2015 school year, Jeffco’s achievement gains, in both English Language Arts and Math were very impressive.

Jeffco 2015 Acuity Results versus McGraw Hill Acuity Benchmarks for Colorado							
	Reading				Math		
Grade	Benchmark	FRL	NonFRL		Benchmark	FRL	NonFRL
3	0.46	0.75	0.89		0.77	0.59	0.72
4	0.44	1.07	1.16		0.53	0.83	0.74
5	0.40	0.84	1.06		0.42	0.46	0.62
6	0.17	0.44	0.58		0.35	0.41	0.64
7	0.12	0.52	0.78		0.26	0.55	0.39
8	0.07	0.76	0.88		0.12	0.36	0.38

Source: "The Efficacy of the Acuity Predictive Assessment Research Design" by CTB/McGraw-Hill

McGraw-Hill has noted that there is a strong positive correlation between within-year Acuity Effect Sizes and across-year Effect Sizes the TCAP assessment. Given that, the 2014-2015 Acuity improvements would likely have generated similarly significant gains on TCAP if Colorado was still using that test to measure year-to-year achievement gains. However, as Colorado has now shifted to CMAS tests for this purpose, (and as Jeffco has switched from ACUITY to MAP) we will have to wait a few more years to see if the correlation between intra-year MAP gains and inter-year CMAS gains is still strongly positive.

That said, in the real world we rarely have the luxury of having complete and perfect information when we have to make decisions. Instead, we make due with what we have, constantly updating our prior beliefs about a situation as new information arrives, and making our decisions either when those beliefs change beyond a certain threshold or when time forces us to act. In the case of achievement improvement in Jeffco, while acknowledging that cause and effect relationships are very complicated in any organization, my conclusion from the available information is that the broad mix of initiatives supported by Witt, Newkirk, and Williams appear to be having a significant positive impact on student achievement, and that we should therefore continue on our present course.

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