

For those of you who might actually speak with district representatives at some point, I would like to address some misinformation and misconceptions being promoted on the district 81 website concerning the adoption of Core-Plus.

Here is a link to the district 81 page with the "FAQs for Math Adoption":  
<http://www.spokaneschools.org/SecondaryMath/mathcir.stm>

Here are just a few examples of the many inaccuracies and misleading statements from this page.

**FAQ (3): Will the program support student success on the SATs?**

They say:

"Again, looking at other districts, we see that SAT scores are comparable or slightly higher in schools that use the *Contemporary Mathematics in Context* materials. In Bellevue, average SAT scores increased by 10 points at the same time as the number of students who have taken the test increased. With nearly 90% of the Class of 2005 taking the SAT, the average score was 59 points higher than the national average."

There are several problems with this statement.

First, it mentions districts (plural), but then only references Bellevue. There is no mention of the many studies showing Math SATs dropping in other districts using Core-Plus. What about these districts where scores went down?

Second, the statement that SAT scores went up by 10 points is given without any clarification. First, it does not say Math scores went up by 10 points. It is possible that the Verbal scores went up 20 points and the Math scores dropped 10 points. Also, it is not clear that a 10 point increase in one year's worth of data is statistically significant (what was the sample size?, is a 10-point gain on a 1600 point SAT test statistically significant?, what is the standard error? etc.). There are many reasons the score could change by 10 points. It is also possible that some of the lower-achieving students raised their scores by 20+ points while the better students dropped by 10+ points. It is not clear where the improvement is happening.

It should be noted that drawing conclusions based on the Bellevue study is not appropriate since, as has been shown by the National Academy of Sciences, no claims can be made about the effectiveness of programs such as Core-Plus based on Bellevue and other similar studies. Furthermore, it should be pointed out that the Bellevue study is not exactly a glowing review (something omitted on the district 81 page). For example, it is noted that 12th graders in Bellevue have skills at the level of 8th graders in other countries.

Finally, the district page states that 90 percent of students in Bellevue took the SAT. My question is what are the numbers in district 81? It is hard to believe that a wealthy and technologically affluent district like Bellevue is a good comparison district to Spokane. Many of these students have access to tutoring and SAT preparation programs that cannot be afforded by students in Spokane. Is that taken into account here?

In summary: the data given on the district web page is not convincing and needs to be clarified. Many studies on both sides (not just one unconvincing study in Bellevue) need to be included.

FAQ (4):

**Will the program support student success in college?**

They say:

"Working closely with the Transition Math Project (composed of members from all state two-year and four-year institutions), Spokane is committed to preparing all students for the opportunity for success in post secondary education.

Along with the state's Higher Education Coordinating Board, Spokane Public Schools encourages all students to take math in their senior year of high school. Our traditional Pre-Calculus, AP Statistics and AP Calculus courses provide students access to college-prep work. We will also add other offerings, such as a newly revised College Prep Math. We are working to align our Integrated 3 course (typically taken at the junior year) with the College Readiness Standards. (<http://www.transitionmathproject.org/standards.asp>) "

Again there are many misleading statements here. What about data from the many studies showing that more and more students with Core-Plus backgrounds are testing into remedial math classes in college (e.g <http://www.math.msu.edu/~hill/HillParker5.pdf>) ? What about the lack of prerequisites for pre-calc and Calc for students coming through a non-college prep K-10 program? These concerns are not addressed and the question of success in college is not really answered.

It should also be noted that the "Transitions" program does not include people from the Math Departments of Whitworth or Gonzaga and only includes some people from SCC and Eastern who are "on board" with what the district is doing. This is not a group that is representative of all colleges and college professors. In particular, this group does not appear to have representatives from the large group of Mathematicians who are not "on board" with programs such as Core-Plus. It is incorrect to use the "Transitions" group to imply that all colleges and college professors are "on board" with Core-Plus and with the "Transitions" list of College Readiness Standards (also mentioned in FAQ(1)).

FAQ (6):

**Is there any place for drill and practice?**

They say:

"Absolutely! The error is to believe that drill is a method of developing ideas. Drill is appropriate when a) the desired concepts have been meaningfully developed, b) flexible and useful procedures have been developed, *and* c) when there is a real need for speed and accuracy.

In order to be successful on college placement tests, students need to have facility in algebraic procedures as well as problem solving and reasoning. Practice with these procedures will be essential for our students."

I agree that practice with algebraic procedures is essential for the students. However, the definition of appropriate use of drill is very vague, giving the impression that the "important" skills are still practiced through drill. I contend that many important and essential skills are not drilled in Core-Plus.

For example, consider the problem of determining where  $y = x^2 - 3$  and  $y = x + 3$  intersect. In a typical algebra course, students would practice solving several equations like  $x^2 - 3 = x + 3$  by hand using techniques like factoring, completing the square, and the quadratic formula in addition to graphing the equations by hand (and possibly, by graphing calculator, too) and finding the intersection points on the graph. These questions test both important algebraic skills and important concepts (like the relationship between the algebra, the solutions to the system of equations, and the graph).

In Core-1, here is how the same question is handled. This is the exact wording of this problem (taken directly from Core-1, unit 3, lesson 3).

"1. The diagram at the right shows the graphs of two relations between variables:  $y = x + 3$  and  $y = x^2 - 3$ . (A picture of the graphs is given at the right). Reproduce that diagram on your graphing calculator or computer. Use the trace function to solve the equation  $x + 3 = x^2 - 3$ ."

Not only are the algebraic skills not drilled in Core-1, but standard algebraic methods for solving these equations are not even introduced in Core-1. In fact, solving equations by factoring and quadratic formula is not even introduced until Core-3, unit 3 (see CPMP Scope and Sequence Tables, p. 11 from the Core-Plus web site). The idea of factoring is normally introduced and practiced in an Algebra I class (typically a Freshman course). Core-Plus students aren't even introduced to factoring until the Junior-level (Core-3) class. This is not advertised on the district web page either.

These are just a few of the misleading statements and omissions made on the web page of which parents and students should be aware. Please feel free to share this with anyone interested.

Thanks,

Dr. Shannon Overbay

Department of Mathematics  
Gonzaga University