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[Palo Alto High School Math Teachers: Some Of Our Students Objectively Can't Learn Algebra](#)

November 22nd, 2011 by [Dan Meyer](#)

Last April, fourteen of Palo Alto High School's [twenty math teachers petitioned their school board](#) [pdf] against raising graduation requirements to include Algebra II:

We live in an affluent community. *Most* of our students are fortunate to come from families where education matters and parents have the means and will to support and guide their children in tandem with us, their teachers. Not *all* of them. [...] We are concerned about the others who, for reasons that are often objective (poor math background, lack of support at home, low retention rate, lack of maturity, etc) can't pass our Algebra II regular lane course. Many of these are [Voluntary Transfer Program] students or under-represented minorities.

Since those students *objectively* can't pass Algebra II, the next appropriate step is to compile a list of those students and prevent their enrollment in Algebra II in the first place. Otherwise, you're putting them in a position to care about passing a class we can be *objectively* certain they will fail. If I were a parent of one of *those* students, this determinism would probably drive me out of my mind.

The signatories are Radu Toma, Suzanne Antink, Kathy Bowers, Judy Choy, Arne Lim, Deanna Chute, Natalie Simison, Misha Stempel, Maria Rao, Charlotte Harris, Scott Friedland, Lisa Kim, Ambika Nangia, and David Baker.

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26 Responses to “Palo Alto High School Math Teachers: Some Of Our Students Objectively Can't Learn Algebra”

1. on 22 Nov 2011 at 5:30 pm [1 Devon Young](#)

Wow. I know algebra can be very hard for some people, but isn't this what teachers are for? They're there to help students learn, *aren't they?* I feel like these teachers have just given up on (some of) the students. I don't believe anyone is unable to learn a given subject.

2. on 22 Nov 2011 at 5:37 pm [2 Jazo](#)

What do they mean by "diluting the standards?"

Also, I don't think that these teachers are thinking long-term: less math now, means more math at the collegiate level, where everything is twice as fast. I have friends who didn't take Algebra II and were forced to take an Intermediate Algebra class (college's Algebra II) before they could start any of the math requirement. A lot of them are struggling because they are learning a year's worth of algebra in only a semester.

3. on 22 Nov 2011 at 5:50 pm [3 Kate Nowak](#)

I understand the shocked/appalled reaction to this letter (giving up on children! Gasp! For shame!) and lots of their word choices are unwise, but I can also sympathize with these teachers. NY requires 3 years of math, and if kids had to pass regents algebra 2 with trig to graduate, our graduation rate would go down. A tad dramatically, I'm afraid, to the tune of three sections of kids currently enrolled in non-regents trig. And it's not that all these kids couldn't learn this material under the right conditions, but it would never happen in the status quo of so very much content crammed into one year culminating in the most ridiculous state examination you have ever seen. In a nutshell, if our board of Ed declared all kids had to pass regents alg2/trig, I'm not sure our letter would read much different.

4. on 22 Nov 2011 at 5:52 pm [4 Riley](#)

Dan, do you think Algebra II should be a graduation requirement?

5. on 22 Nov 2011 at 5:55 pm [5 Kate Nowak](#)

Well except for all the tone deaf elitist parts. Which are objectively rather appalling.

6. on 22 Nov 2011 at 6:11 pm [6 Dan Meyer](#)

@Kate, the resources Palo Alto could deploy on behalf of those underserved students is staggering. That's the salt in the wound.

@Riley, Algebra II is a requirement for admission to the University of California system. High schools are just taking their cues from the UC which, IMO, should drop the Algebra II requirements. It's about as useful to liberal arts majors as 19th-century French literature is to me. If there's any kind of causal relationship between Algebra II completion and success in higher education, I'm willing to change my mind. I haven't seen any.

7. on 22 Nov 2011 at 6:16 pm [7 Steve](#)

I am in Michigan where we require 4 years of math, Alg2 being one of them — for ALL students including LD kids. Parents can do a "personalized curriculum" which deletes the Alg2 req ONLY after the kid tries it for a semester (and fails).

Personally, I think Alg2 is a bit much for all kids, not just "those" kids. I think we should require

personal finance (credit/debt, bank statements, budgets, etc.) MUCH before Alg2.

Luckily, Michigan's 4th year math class can be integrated, such as: Accounting, Programming, Construction, Personal Finance, etc. The problem though is that MANY schools are stretching the Alg2 requirement over two years (and counting it as 2 years — that part I really don't get).

I think we should have grade level entrance exams. — If you can't pass, you can't get in. Kids are merely socially promoted through so many grades. When they come to high school with 3rd grade reading and math levels, I think Alg2 will be a little hard no matter how great that Alg2 teacher is.

8. *on 22 Nov 2011 at 6:23 pm* [8 Michael](#)

Dan... In your opinion, what kind of math should students learn in school. Which branches for which students? That is, would every students study the same topics or ones specialized for their future career paths?

9. *on 22 Nov 2011 at 6:30 pm* [9 JL](#)

I just read this and am appalled! I teach in NYC and I teach the 2-year algebra I track. These kids were quite weak when I first started with them last year but with enough hard work and determination between me and the kids, I feel that we've achieved so much. From not being able to solve a one-step equation, now they're able to solve quadratics and trig problems! I truly do believe that given the chance, these kids can and will make it to Algebra II, and they will do well. I've worked too darn hard (and so have they) for someone to pre-determine their future that way. I know for a fact that my brother never made it to Algebra II in HS, he only completed Algebra I. In college he had to make the jump from Algebra I to Calculus (he was a business major), which by far, was the most difficult thing he has ever endured! I always feel a sense of responsibility to help my students keep as many 'doors' open as possible, just in case. Maybe I'm delusional ...

10. *on 22 Nov 2011 at 6:41 pm* [10 Emily](#)

This is not a new argument. I've yet to be in a school system where I haven't heard one version of this same rant or another. And I too can sympathize, having been that teacher in a room full of unmotivated, under-prepared, and apathetic high school seniors.

But I don't agree with the authors and I think, rather, that it is the Algebra 1 curriculum that needs the real overhaul and not the Algebra 2... and unfortunately (or fortunately), that falls to us. If students were more successfully motivated in a rich mathematical environment that explored real depths of algebra from the beginning, I don't think it would seem so insurmountable later on.

Keep up the good work Dan, and all the rest of you too. My classroom certainly is benefiting, and hopefully that means more students will be prepared to leap the hurdles as they approach them.

11. *on 22 Nov 2011 at 7:19 pm* [11 Greg Brcka](#)

We require Algebra II for our sophs to graduate in 2 years. I believe that a math literacy course would benefit a portion of students that are not calculus bound. There are ways to give students math knowledge that will help them more than Algebra II.

12. *on 22 Nov 2011 at 7:28 pm* [12 AndrewS](#)

@Kate – Amen. You said it better than I will be able to.

@Dan – First, can we agree that Algebra 2 is a ridiculously difficult class to find proper motivations for (it is comparatively easier to find “3 Act” topics of conversation for Alg1, Geom, or Calculus) and that without motivation, it is a class many will struggle to understand? Second, would you have been happier if they had replaced the word “can’t” in the phrase “...can’t pass our Algebra II regular lane course” with “would have to put forth Herculean effort”? I agree with Kate that the authors made some poor word choices, but the balance of the letter seemed to indicate that they were trying to keep students from taking a course that would give the students nothing but frustration.

13. on 22 Nov 2011 at 7:37 pm [13 Shelley](#)

If students aren’t understanding content in the traditional method of teaching then teach it to them differently. Perhaps the teachers could read one of the books by Ron Clark about motivating students and holding all students to high standards. “The End of Molasses Classes: Getting Our Kids Unstuck. 101 Extraordinary Solutions for Parents and Teachers.” He is one of the most inspiring motivational speakers a teacher can ever see. I think the teachers you mention above would then feel more confident about being able to educate ‘those’ kids.

14. on 22 Nov 2011 at 8:21 pm [14 Jason Buell](#)

Their hearts I think were in the right places but they whiffed badly. The point isn’t *can* every kid take Alg 2, but should they.

15. on 22 Nov 2011 at 8:40 pm [15 gasstationwithoutpumps](#)

UC is not the bogeyman here. I had occasion to find out exactly what the real UC requirements are, because I’m home-schooling my son in high school. I posted about it at <http://gasstationwithoutpumps.wordpress.com/2011/10/07/satisfying-ucs-a%E2%80%93g-requirements-with-home-school/>

Students can satisfy the math requirement with a 480 on the SAT 2 math 2 test or a 570 on the SAT 2 math 1 test (a level which probably doesn’t really require mastery of algebra 2). (Note: since my son, as a sophomore, is taking the Art of Problem Solving online calculus class, and got an 800 on the SAT 2 math 2 his freshman year, we weren’t worried about the UC math requirement. The English requirement, on the other hand, is much stricter and harder to dodge.)

I think that, in general, it is a mistake for a high school to match their graduation requirements to the entry requirements for UC, which is supposed to take the upper 1/8th of high school graduates. Encouraging students to aim high is all very well, but requiring everyone to jump over a bar intended for separating the top eighth from the rest is not really fair. Since UC can’t take everyone, even if by some miracle all high schoolers in the state did pass Algebra 2, all that would happen is that the bar would have to be raised.

The wording of the teachers’ statement was very poor—I hope that none of them also teach English or politics.

16. on 22 Nov 2011 at 8:50 pm [16 Sarcasymptote](#)

First, can we stop being appalled? For Christ’s sake.

Secondly, @Kate: I’m afraid this is the future for us too. The new CUNY requirements for admission (and stamping our students as College Ready) are getting above an 80 on either Algebra, Geometry, or Algebra 2 AND passing the Algebra 2 class. ALSO, next year, “College Readiness” will be one of the

metrics for determining how good a school is here in the city. So, you know, scoring well on a bullshit test and completing some extra bullshit curriculum will now be forced down everyone's throat or else they will try to close your school down and send everyone to some bullshit charter school where everyone is positive and Ron Clark can just teach every kid AND EVERY KID WILL WIN BECAUSE THEY PASSED ALGEBRA 2.

@Dan: "Of all of the classes offered in high school, Algebra II is the leading predictor of college and work success, according to research that has launched a growing national movement to require it of graduates." BUT THE WASHINGTON POST SAYS IT!

Lastly, I'm really grumpy, mostly because I already have 3 preps, plus run an independent study, plus am a team leader, plus have other leadership positions, and because of these goddamn requirements I have to spend a prep period tutoring kids so they can retake the bullshit test (that they already passed, just not with an 80). All of this shit about "college readiness" is just more shitty hoops to jump through for everyone.

Oh, no, sorry, this is the last thing: I don't think anything would give me more pleasure right now than kicking Ron Clark in the nuts.

17. on 22 Nov 2011 at 9:01 pm¹⁷ James McKee

I've been struggling lately with my mission, which seems a lot like trying to squeeze square pegs into round holes. I think we sometimes miss the question. It's not *can* we get all students to learn Alg 2, but *should* we? I agree with a previous poster that there's a lot of math we could teach besides Alg 2 that would probably be more beneficial for students than Alg 2 (namely stats).

I get frustrated with the single-mindedness of college preparation. Not every kid is going to college. Or should go to college. I think we over-push college on kids. There are a LOT of great career opportunities for hs grads that don't require a college degree (or Alg 2), and we do students a disservice by implying that it is needed.

Final thought: kids come to us with a wealth of talents and abilities. That group of unmotivated, disengaged students that drives us all nuts is probably that way because "what they're good at is not valued, or is actually stigmatized in school." (Sir Ken Robinson- see the full TED talk here: http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html).

Can we teach high level math to every kid? Probably. Does every kid need high level mathematics? I remain unconvinced.

18. on 22 Nov 2011 at 9:07 pm¹⁸ James McKee

@ sarcasymptote: you make me smile. Thx.

19. on 22 Nov 2011 at 9:24 pm¹⁹ [josh g.](#)

Somehow, seeing someone else grumpy about having three preps plus etc plus life makes me feel a little more normal for going frickin' crazy with four preps (one of which I actually had never actually, y'know, learned before teaching it – anyone care to learn about double-entry accounting, because I am now the frickin' MASTER).

20. on 22 Nov 2011 at 10:39 pm²⁰ TMO

Ha, Ha... no wonder of my former students at UCSB posted on facebook that our school did little to

prepare them compared to others. We can't even convince everyone that Algebra 1 for everyone is a good thing. Welcome to the Meth capital of the world.

21. on 22 Nov 2011 at 11:40 pm [21 Nameem](#)

Free Online education system

In this time of competition, the IT field is growing to peak. There is a big need of IT institute services. There are many associations those are serving in IT field. Apex Venture Solutions (AVS) is also one of them institutes. Apex Venture Solutions (AVS) Private Limited is one of the foremost qualified training bringers. We propose on-campus and on-site training and consultancy services in sequence Technology and Management Science. You can visit us at our site for online services as following, <http://>

avsonlinelearning.blogspot.com/

22. on 23 Nov 2011 at 12:20 am [22 blaw0013](#)

I wanted to scream SHAME. But @jason buell got it right (comment 14). Instead, SHAME on Math Education writ large, and specifically in CA. Why can't mathematics education remake itself from its public school origins meant to prepare mathematicians to develop the logico-mathematical mind of all children? [yes, I did just drop some Piaget] I often wish I could re-find some cognitive science research I read 15 years ago suggesting that the cognitive requirement necessary to learn language was more demanding than what was necessary to understand the mathematics of calculus.

23. on 23 Nov 2011 at 5:02 am [23 Pete McNamara](#)

Seriously?

Is a high school diploma (the piece of paper) important? There's a vast difference in what someone with a high school diploma earns compared to someone without one. About a 50% bump in earning power. It's important not to dumb it down, but it's also important that kids can get there.

The question is what math should a student need to make it through to be granted a high school diploma, and access to these higher paying jobs.

24. on 23 Nov 2011 at 5:53 am [24 Mark](#)

It seems so obvious to me that Algebra II is useless to such a huge percentage of the population that it should certainly not be mandatory in high school. This is the epitome of rigor solely for rigor's sake.

25. on 23 Nov 2011 at 6:03 am [25 Timfc](#)

Buried in the lit review of:

<https://oir.auburn.edu/about/publications/SAIRPaper2004.pdf>

You'll find:

Accepting the widespread idea that students are generally not prepared for college coursework, many studies have turned to identifying which influences result in college achievement and have found a link between high school math courses completed and postsecondary academic success (Ruban & Nora, 2002; Kirst, 2001; Bottoms & Feagin, 2003; Keller, 2001; U. S. Department of Education, 1997; Adelman, 1999; Perkins, 2004). A 1999 study from the U.S. Department of Education found that taking a math course beyond Algebra II in high school

more than doubled a student's likelihood of completing a bachelor's degree. As the highest level of secondary math rose, the likelihood of degree attainment followed, culminating with more than 80% of students who took calculus receiving a degree (Adelman, 1999). Other analyses concluded that students who took calculus were 28 times more likely to be a "high achiever" in post-secondary work, and that the level of math taken, regardless of factors such as race, socio-economic status, or type of high school, was the largest indicator of college achievement level (Ruban & Nora, 2002; U. S. Department of Education, 1997). A high school transcript study conducted by the National Center for Education Statistics found a link between scores on a mathematics assessment test and the length of time since a student's last math course. Scores were highest for students who had their last earned math credit in the 12th grade, followed by students whose last coursework was in the 11th grade. The lowest scores were by those who had not taken math since their 10th grade year (Perkins, 2004).

A white-paper by the ACT folks says:

Taking higher-level mathematics courses in high school is associated with increases in students' chances of success in first-year mathematics courses (by 3 to 28 percentage points).

*The WP claim listed above relies on the Adelman (1999) paper.

*But, I'm pretty sure a lot of this data says, "good students are good students." It's correlations that they're looking at, not causation.

26. *on 23 Nov 2011 at 6:08 am* [26](#) *Guessed*

@Dan: If there's any kind of causal relationship between Algebra II completion and success in higher education, I'm willing to change my mind. I haven't seen any.

Is there "any kind of causal relationship" between ANYTHING and success in higher education?

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