



mindful education lab

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I am a professor of psychology and education at NYU. I am pretty well known for research on race and gender disparities in STEM learning and standardized test performance.¹ I have also conducted extensive research on the achievement gap between students of color and phenomena known as “stereotype threat” and “growth mindset, which are well known to educators.”² I have been conducting research on learning and classrooms for about twenty-five years, and have taught courses on learning and education for the same amount of time. I have taught classes of all sorts at NYU from large lectures to tiny seminars, and sometimes teach in public school classrooms in order to empathize with the teachers and understand their current work. I am currently on the board of a number of schools, my role is to help them become better at nurturing the intelligence and character of any child that walks through their doors. I’m the father of two public school students, and am myself the product of the public schools.

Also an author. I’m currently writing a book about the art and science of highly effective schooling, schooling that reliably produces kids who are noticeably above their peers in important ways— smarter, kinder, and happier. This is the kind of young people we need to take the reins of the future of this country—big brains, but also big hearts. Extraordinarily good

¹<https://steinhardt.nyu.edu/news/five-steinhardt-faculty-members-ranked-most-influential-policy-scholars-nation>

² Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of experimental social psychology*, 38(2), 113-125; Aronson, J., & Dee, T. (2012). Stereotype threat in the real world. *Stereotype threat: Theory, process, and application*, 264-278; Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat. *Journal of Applied Developmental Psychology*, 24(6), 645-662.

schools can do this. But it's not easy, it's difficult. Still, there is a recipe that I will describe in the book. A key, indispensable ingredient in this recipe is smallness, because the aim is to create a sense of community where people care about and cooperate with one another. The larger the group, the harder this is to do.

The star of my story is a public school in Maryland (which I will call Maryland Elementary), a poorly funded little public school in coal mining country. Somehow the school did a massive turnaround, elevating extremely low income, low performing students in profound ways. In just four years the school's state test scores rose from the lowest in the state to the very top. That, to me, looked too good to be true; especially considering all they had done was to hire a new principal. It was a lovely story, but most of the research and experience at the time suggested that it requires more time, more resources—and especially more firing of “bad” teachers and hiring “good” ones—to turn around a failing school.³ Was this another pressured school cheating on their annual tests to avoid being punished under *No Child Left Behind*? Lots of schools cheated under pressure to raise test scores, often hurting children in the process, sometimes destroying them.⁴

But when I visited the school my suspicion faded and rather quickly turned to awe. They weren't cheating at all. Nor had they become a test prep operation, as so many schools do when under the gun to produce growth, or the appearance of growth. There were no signs that they had narrowed the curriculum to focus scores on tests. In fact, these kids spent more time outside playing and exploring and working with their hands than they did prepping for tests. I never saw them preparing for tests or even discussing them. The social science data on the effects of test based accountability on school behavior raised many suspicions about the rapid improvement.⁵ But none of them were confirmed.

In my repeated observations of the school, what I saw instead was what I seldom see during visits to New York City public schools: classrooms with almost complete intellectual, psychological, and behavioral engagement from all the children, all the time. The students were eager to learn. A sense of calm, inclusion, trust, and kindness seemed to pervade every classroom and nearly every interaction. Immediately I wondered: *How do I get my child here?*

What was the secret? What accounts for this massive success? The new principal had learned some simple but vital truths about the psychology of teaching and learning, and with this knowledge she built a culture that uncompromisingly aligned itself to those truths.

³ Dee, T. (2012). *School turnarounds: Evidence from the 2009 stimulus* (No. w17990). National Bureau of Economic Research.

⁴Heilig, J. V., & Darling-Hammond, L. (2008). Accountability Texas-style: The progress and learning of urban minority students in a high-stakes testing context. *Educational Evaluation and Policy Analysis*, 30(2), 75-110.

⁵ Ravitch, D. (2016). *The death and life of the great American school system: How testing and choice are undermining education*. Basic Books; National Research Council. (2011). *Incentives and test-based accountability in education*. National Academies Press.

The foundational truth is this: all children can become eager, curious learners, *but only when key physical and social needs are met*. This school therefore takes very seriously getting to know each child and their family, so seriously those needs come into sharp focus and the school can do their best to meet them.

It sounds simple enough, but takes time, care, compassion—and *most importantly—small class sizes*. To know children and their families well enough to make kids smarter, nicer and happier, it is critical to keep class size small. This fosters a sense of belonging, and reduces the chances that a child's difficulties will go unnoticed. Children in small classes cannot easily hide their challenges and misunderstandings and this means they end up learning more effectively.

It is a lawful fact in education that student teacher-student relationships matter for learning.⁶ We all know this so well that we may take it for granted. But rare schools like this show how much can be gained by prioritizing relationships.

Specifically, Maryland Elementary illustrates several research findings on the important benefits of a smaller, more intimate learning environments:

1. **Improved achievement.** Students show both short term and long term success when classes are small during the early grades.⁷ Not all analyses conclude that it's always good to reduce class size.⁸ But most of the data supports class size reduction. At the Maryland school the success seems to be long lasting, the effects of elementary school evident in high school achievement.⁹ For example, in addition to maintaining their high test scores, Maryland Elementary regularly produces more graduates who win national honor society awards than all the other elementary schools in the district combined. Kids that attend this once abysmal elementary school are now many times more likely to wind up in Advanced Placement classes years later in high school than their counterparts who attend other schools. The school has won a slew of awards, including intel science research prizes, and National Principal of the year. One powerful marker of this success: Although 86% of the students live beneath the poverty line, the school's reputation is now attracting wealthier families to the district. literally enriching the community. When I interview teachers in middle school and high school they tell me things like this: *You can always tell the kids who come from Maryland Elementary; they ask the best questions and are the best behaved.*

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⁷ Karl Fritjof Krassel & Eskil Heinesen (2014) *Class-size effects in secondary school*, *Education Economics*, 22:4,412-426, DOI: 10.1080/09645292.2014.902428

⁸ Li, W., & Konstantopoulos, S. (2017). Does class-size reduction close the achievement gap? Evidence from TIMSS 2011. *School Effectiveness and School Improvement*, 28(2), 292-313.

⁹ Francis, J., & Barnett, W. S. (2019). Relating preschool class size to classroom quality and student achievement. *Early Childhood Research Quarterly*, 49, 49-58.

2. **Reduced negative effects of race and gender match.** Children in diverse environments appear to learn less well from teachers who have different backgrounds. Black students get lower test scores in classes taught by white teachers and vice versa, and girls get lower math scores in classes taught by male teachers. This was confirmed in the famous Tennessee STAR experiment, which randomly assigned students to classes that were either large or small. It was a big advantage to have a teacher of the same race or gender. But this effect was nonexistent in small classes. We cannot know precisely why it is better to have a black teacher if you are black or a white teacher if you are white—is it teacher bias, a lack of trust, a role model effect, perhaps?¹⁰ We cannot be certain, but clearly whatever dynamic penalizes students for not having a teacher of the same race or gender, it seems to evaporate in smaller classes.¹¹ When we know people as individuals, stereotyping tends to diminish. Students want to feel known and appreciated as individuals rather than as *the black girl in the third row*.
3. **Improved relationships.** We recently interviewed 14-year-olds who had attended Maryland Elementary school between Kindergarten and -5th grade. One girl's response was characteristic of most students and confirmed many hours of observing classrooms by my team:

Q: Did you ever witness fighting or arguing or bullying?

A: "Never. I think I remember one time a kid saying something that wasn't super nice to another kid, and he was made to apologize...but that's pretty much it. Kids were nice there. Not like my school now."

4. **Teachers are willing to work for less salary.** Studies show that teachers want smaller classes, want better relationships with students, and believe smaller classes improve their effectiveness. Ultimately most teachers appear willing to sacrifice significant pay for the experience of really making a difference. I had seen this data before, but it hit me over the head in Maryland when I met a new teacher at the school. A mother of three boys, she was working for a salary of only \$15,000 per year. She told me that she had recently turned down an offer for \$34,000 at another nearby elementary school. "It's tempting but just not worth it," she said. The feeling here is too special, the love...the gratitude...the success..." In the other school, her salary would have more than doubled, but so would her class size. Each visit to the school I meet another volunteer who is there to help out, because smallness promotes a sense of community. Big schools with large classes tend to foster a sense of bureaucracy. In all my years studying schools, I have yet to see people eager to volunteer time for a bureaucracy. But when you really do right by children, everyone wants to help out and be part of the community. Each time

¹⁰ Paredes, V. (2014). A teacher like me or a student like me? Role model versus teacher bias effect. *Economics of Education Review*, 39, 38-49.

¹¹ Dee, T. S. (2005). A teacher like me: Does race, ethnicity, or gender matter?. *American Economic Review*, 95(2), 158-165.

I visit the school someone new is offering free labor. Kindness to children begets more kindness to children.

To be sure, size alone cannot guarantee this kind of community. Manageable class sizes aren't sufficient to fix our schools. But I believe smallness may be necessary to creating the powerful school culture I have described, especially in underserved populations. When a school is a community it can accomplish what bureaucratic schools can only dream of— nearly 100% engagement, attracting free labor, and regularly turning out high caliber students whose advantages persist seven years after leaving the school. Clearly this is expensive, but mainly at the outset. When schools function this well, the social benefits can begin to accrue outweigh the up front costs—in my opinion, and in the opinion of nearly every teacher and principal I have ever met.

And this is why sending your child to the best and most expensive schools in the country— Choate, Andover, Exeter—means your child will take classes no larger than 8-10 students. Why do the best schools in America insist on small classes? Because they know what Maryland Elementary knows. Small is beautiful. And it works.