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Commentary

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Dumbed down math: California's "math lite" debacle and how to avert the misadventure in Canada

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St. Alphonsa Catholic Elementary School in Brampton, Ontario, which opened in September 2016, is an institution that's very committed to implementing the latest educational fad – "mathematical growth mindsets." Acting upon the advice of Jennifer Vieira, former Math Coordinator at the Dufferin-Peel District Catholic School Board, the school's principal and elementary (K-8) wing jumped on the work of Stanford Graduate School of Education (GSE) math pedagogy professor Jo Boaler, as exemplified in her 2015 book *Mathematical Mindsets*, her appealing TEDx talks, and the GSE's *youcubed* website.

From its inception, the K-8 wing's approach to teaching math patterned Boaler's now hotly contested theory and practice (Stanford School of Education, 2019). No one was considered an "expert" and everyone in the classroom, student and teacher alike, contributed to one another's learning. Embracing a full-on constructivist approach, students learned math in a "mistake friendly environment" and were nurtured with "positive self-beliefs – that they can learn anything." (Boaler, 2019). It all smacks of what is now termed "math lite."

Elementary school principals and teachers in Ontario and other provinces would likely be shocked to discover that Boaler's theories and practice, undergirding the California State Board of Education's recently approved July 2023 math framework (California, 2023), have come under intense critical fire. Why the backlash? Much of Boaler's work is at odds with evidence-based research in the science of learning. Simply put, it ignores decades of scientific research about how kids actually learn (Kirschner and Hendrick, 2020, 3-13). The Boaler-inspired California curriculum is, in Thomas B. Fordham Institute fellow Daniel Buck's words, a "fundamental miscalculation" (Buck, 2023); one that's potentially damaging to a whole generation of elementary school-aged children.

The most vocal critics have targeted the California framework's overt political bias or its aims to achieve "equity" by holding back advanced students (Lee, 2023). Digging deeper, there's a much bigger problem – it not only dumbed-down and fuzzed-up the math content but embraced so-called "inquiry learning," which is poorly grounded in the pedagogical research. Inquiry learning has also proven deficient in developing the foundational mathematics skills essential to solving more complex problems.

The war on math in schools

The California initiative and its Canadian mutations have roots dating back to the "Math Wars" of the 1990s. Then as now, "New Math" proponents and traditionalists argued over the best way to teach children math, and California's math curriculum was a focal point. Self-styled 'progressives' encouraged students to discover and construct knowledge with little guidance from the teacher; traditionalists emphasized the need for step-by-step practice of procedures and memorization of basic math facts (IES, 2023). In 1997, California adopted compromise standards – mixing-and-matching both approaches.

The compromise eventually dissolved. In fact, the initial draft of the July 2023 California framework, shaped by Boaler and released in 2021, was a near total victory for the constructivists. It had some allure for elementary school principals, consultants and teachers, especially those committed to engaging kids through curiosity, exploration, and play. Many find teaching the fundamentals onerous, dismiss it as "rote learning," and are quite happy to dispense with established routines, worksheets and flashcards (Boaler, 2009). Whereas traditional math teaches students through preset concepts and skills, California's framework focuses on student-derived questions rather than mastering computation skills. Students face challenges and questions in collaborative groups in minimally guided classrooms (Buck, 2023).

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Less evident in the new California math framework is its all-encompassing nature – including learning goals, instructional "best-practices," and class sequences – and its mediocrity (Buck, 2023). Banning or limiting timed tests, celebrating mistakes, 'multiple opportunities' (no fail) alternative assessment, utilizing visual representations, de-tracking, group work, and mixed-ability classrooms all received stiff criticism from educators and parents committed to academic excellence and college readiness (Huang, 2020; Conrad, 2022). It's clearly designed to appeal to teachers with little or no academic background in formal mathematics and likely teaching the subject outside their respective comfort zones. That may explain its current popularity in so many Canadian public education classrooms.

Discovery math and its ascendancy in Canadian elementary schools

Elementary education was captured by constructivist theory and 'discovery learning' decades ago. Sixty years ago, Harvard Education professor Jerome Bruner proposed that "discovery" would benefit learning and gave credence to the whole concept (Bruner, 1961). Little was known back then about how we learn, and little empirical research existed to adjudicate competing claims. Modern methods in the social sciences have vindicated traditional approaches but, by then, discovery learning was baked-in and accepted as teaching lore.

Discovery learning was ascendant in Canadian elementary schools by the early 2000s (Stokke, 2015; Sullivan, 2028). Much of it was driven by mathematics education researcher Dr. Marian Small, former dean of the University of New

Brunswick's Faculty of Education and leading proponent of the constructivist approach to mathematics instruction in K-12 classrooms. Her math education textbooks, including *Making Math Meaningful to Canadian Students K-8* and the *Big Ideas and Good Questions* series, cemented her reputation and won over a whole generation of beginning teachers.

Long before Boaler arrived on the scene, Small introduced the vast majority of Canadian elementary teachers to constructivist math instruction. Applying the so-called 'discovery method,' Small and her disciples encouraged students to "construct explanations to math problems" without putting much emphasis on mastering math facts, including multiplication tables. The method of math instruction championed by Small and her disciples was aptly described by Manitoba policy analyst Michael Zwaagstra as a "random abstract approach" (Zwaagstra, 2011). In March 2014, Small was identified in *The Globe and Mail* as "Public Enemy No. 1" by proponents of more traditional skills-based instruction (Anderssen, 2014). With math scores plummeting, critics claimed that students were losing their 'number sense' as a direct result of the dominant "fuzzy-math, skills-lite" approach championed by Small and her allies.

Jo Boaler and the "false growth mindset"

Beginning in 2015-16, Boaler made a splash with a series of North American education keynote speeches billed as *The Mindset Revolution: Teaching Mathematics for a Growth Mindset.* She was the featured speaker at the November 2016 Ontario Association for Mathematics Education (OAME) Conference. Piggybacking on the work of Stanford colleague Dr. Carol Dweck, she claimed that "'intelligence' and 'smartness' can be learned" and that "the brain can grow from exercise to learn more effectively, displaying a desire for challenge and showing resilience in the face of failure." Mathematics teachers, she added, could play a critical role in the development of positive mindsets by paying attention to "classroom norms, math tasks, questions and assessments."

While Dweck's Growth Mindset 1.0 got little traction in Canada, the so-called 'Mindset Revolution', championed by Jo Boaler and education tech evangelists like Alberta's George Couros and Ontario's Brian Aspinall, proved popular with both elementary curriculum consultants and tech-savvy teachers. Many of the adopters, including Boaler, were student-centred educators who appropriated Dweck's research for their own purposes (Bennett, 2019).

From 2016 onward, Dweck and her research associate Susan Mackie began alerting researchers and education policymakers to the spread of what they termed a "false growth mindset" in schools across the anglosphere. While intended to spur conscientious efforts, it was being debased and reduced to simple axioms like "Praise the effort, not the child (or the outcome)." A month after Boaler's OAME address, Dweck acknowledged in a feature for *The Atlantic* magazine that the mindset approach may have revived the "failed self-esteem movement" because, in too many classrooms, it amounted to "blanketing everyone with praise, whether deserved or not" (Gross-Loh, 2016).

Dispelling the myth: the rejection of "minimally guided instruction"

The prevailing approach and its supporting mythology have been gradually dismantled by cognitive learning researchers. Three leading educational psychologists in the cognitive science field, Paul A. Kirschner, John Sweller and Richard E. Clark, demonstrated this in a seminal 2010 study providing "overwhelming and unambiguous evidence" that inquiry-type learning techniques are "significantly less effective and efficient" than more structured, teacher-guided activities. Evidence also suggests that the inquiry approach "may have negative results when students acquire misconceptions or incomplete disorganized knowledge." Reduced to a simple analogy: inquiry learning is the educational equivalent of pushing a child into a pool to teach him to swim. Only a lucky few will stay afloat.

University of Virginia cognitive scientist Dan T. Willingham, writing in *American Educator,* the flagship magazine of the American Federation of Teachers, endorsed the Kirschner et al. study. However, while compelling and persuasive, the critique failed, for the most part, to dislodge deep-seeded beliefs about discovery learning. With Jo Boaler's subsequent championing of constructivism, it failed to register in California or in Canadian provincial systems. Awakening classroom teachers, researchers and policy-makers to the latest evidence-based research in the science of learning provides the *raison d'etre* for the U.K.-based international education reform organization researchED and explains its growth in Canada (Bennett, 2020, 232-234).

Deconstructing the California Math Framework

In the case of California, the so-called 'progressive' approach led to a watering-down of the whole curriculum, including delaying the teaching of algebra, the introduction of data science as an alternative option, and limiting access to calculus (Huang, 2020; Lee, 2023). The first draft of the California Math Framework exhibited all the tell-tale signs of constructivist thinking and perspectives. "Memorization" and "memorize" appeared some 27 times, always with a negative connotation, mostly deriding rote memorization or "drill and kill" activities which Boaler and her allies claimed threatened to rob children of "joy and fascination" while simultaneously instilling "fear and dislike" of mathematics (Buck, 2023).

This view misses the fundamental difference between the thinking process of the expert and that of novices (Kirschner and Hendrick, 2020, 3-11). Subject experts, particularly in mathematics, possess automatized skills (i.e.: muscle memory) and bring a wealth of knowledge to bear on new problems. It's bad pedagogy to rush students ahead to applications before they've mastered the basic building blocks. Such an approach would be unthinkable in other endeavours, such as learning a sport or musical instrument. No one would send a novice to fill a vacancy in a symphony orchestra or onto the ice with professional hockey players and call it a success. By downplaying the need to learn the basics, such curricula prevent students from ever attaining mastery of the subject (Buck, 2023).

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A certain amount of memorization, it turns out, is highly desirable when it comes to helping students learn in schools. That point was made crystal clear in a new study, "Designing mathematics standards in agreement with science" (Hartman, Hart, Nelson, and Kirschner, 2023). The authors make the case that math standards need to be modernized to bring them into alignment with evidence-based research reaffirming the need for students to be able to quickly recall core math facts.

The science of learning and math curriculum reform

Growth mindset "brain science" research and Boaler's holistic approach have been challenged by some of Canada's leading learning scientists. Developmental psychologist Daniel Ansari, director of Western University's Numerology Cognition Lab, took aim at Boaler's 2019 book, *Limitless Mind*, claiming that it overestimated the positive effects of 'mathematical growth mindsets' and rested its argument upon outdated studies (Lee, 2023). Newer, larger studies, Ansari pointed out in a critical review of the book, indicated that "these effects are, at best, modest – and possibly non-existent." Like other scholars of numerical cognition, Ansari alleged that Boaler had misinterpreted neuroscientific concepts and made substantive claims without sufficient supporting evidence. In a parting swipe, he quipped that she tends to adopt a "fixed mindset" when confronted with research findings that run counter to her paradigm (Ansari, 2019).

Fears that young learners will be exposed to deadening, repetitive routines that are difficult, frustrating or off-putting are overblown. Armed with the latest evidence-based research, Nidhi Sachdeva and Jim Hewitt, at Toronto's Ontario Institute for Studies in Education (OISE), have developed a popular course entitled, "The Science of Learning". Through this course, beginning teachers and graduate students learn, among other things, how to foster "automaticity" through classroom activities focusing on memorizing single-digit multiplication facts in ways that are kid-friendly – engaging, low-stakes, and enjoyable for students (Caron, 2007).

We now know far more about how students learn and what actually gets remembered, particularly in mathematics courses. Cognitive scientists make a clear distinction between working and long-term human memory (Kirshner and Hendrick, 2020, 166-174). It helps to explain why most of us are only able to process four to seven pieces of information at a time. A short telephone number is relatively easy to remember, but any more information on top of that quickly slips away (Buck, 2023).

Effective early mathematics instruction builds up the working memory and develops automaticity – or performing operations without thinking – for numbers and basic computations. When procedures become automatic, they take up no space in working memory and there's more space for new knowledge to enter and remain in long-term memory (Wu, 1999, 2; Hewitt and Sachdeva, 2023).

Raising all boats, the best path to equity

All children are teachable and Canadian math educator John Mighton's book, *All Things Being Equal*, shows that this applies to learning mathematics (Mighton, 2020). Investing in the education of poor kids, and those from marginalized communities, is the best path forward and that means teaching more, not less, mathematics. Lowering standards to achieve equity makes matters worse because it reinforces a cycle of diminishing expectations, adversely affecting – to a higher degree – the most disadvantaged and marginalized students. Instead of limiting access of stronger students to algebra and higher-level mathematics, investing more in teaching mathematics to disadvantaged kids is the best path to equity (Loveless, 2022).

Current academic pathways in high schools do stream students and can perpetuate inequalities in education. Grouping students by identified ability levels or test scores may have some detrimental impacts, but introducing "data science" in place of "algebra" has its own downsides. A majority of Black faculty members in University of California science, math, technology and engineering fields, for example, said, when surveyed, that allowing data science to substitute for Algebra II would harm students of colour by steering them away from STEM fields and undermine university efforts to improve diversity and equity (Blume and Watanabe, 2023).

Summary conclusion: averting the California "math lite" debacle in Canada

The controversy over the new California math framework has many lessons for Canadian education leaders, policymakers and educators (Conrad, 2023). Once again, proven instructional fundamentals were ignored in favour of fashionable but untested theories. The February 2022 Ontario Human Rights Commission Right to Read Inquiry report reaffirmed the effectiveness of structured learning practice embedded in phonics-based literacy programs. Yet the State of California and its Canadian imitators appear to be repeating the same error in math, ignoring the latest research in the science of learning in favour of romantic notions about learning and childhood 'discovery' (Hirsch, 2001).

Discovery-based instruction, entrenched in the 2023 California Math Framework and rebranded as "inquiry learning," continues – in Ontario and most other provinces except Quebec – to stand in the way of implementing the tried-and-true formula of teacher-guided instruction, daily math practice, and student mastery of foundational skills. The latest research in cognitive learning science (Hewitt and Sachdeva, 2023) confirms that mastering math facts, including multiplication tables, develops automaticity, enhances math competencies, and builds the levels of confidence that are essential to student success. Student fluency with basic math concepts, such as fraction arithmetic, in early and middle years predicts math proficiency in future grades (Stokke, 2015, 8-12).

Following the California path in Canadian provincial systems would be unwise because it's heading in the wrong direction. The latest iteration of the Ontario Mathematics Curriculum (Grade 1 to 8) did remove a small section proclaiming that "an equitable mathematics curriculum was subjective," but otherwise reaffirmed existing trends with broad commitments to raise math standards, introduce coding, integrate social and emotional learning, and develop financial literacy. (Ontario, 2020). It fell considerably short of the Ford government's initial pledge to embrace a full-on 'back to basics' curriculum reboot (Correa, 2023).

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Improving mathematics curricula and instruction is a challenge that remains to be overcome, both in Ontario and elsewhere. Embracing "vague, billowy 'big ideas,'" making math classes more "frivolous and less demanding," and embedding social justice lessons – i.e.: following the California model – will not necessarily bring about more equity (Evers, 2023; Smith, 2023). Our provincial math curricula need to be completely revamped to teachers from ineffective pedagogical strategies and to put greater emphasis on specific mathematics skills, at appropriate grade levels, that are known to lead to later success in more advanced mathematics. Instead of 'dumbing down' mathematics to make it more palatable to novice teachers, it is far better to invest in attracting more math/science graduates to teaching and to establish higher numeracy standards in teacher training and certification (Stokke, 2015, 12-14).

Student mathematics scores are still languishing after the pandemic, but there are signs of hope. The recent rise of the learning sciences (Kirschner and Hendrick, 2020; Groshell, 2023), the emergence of numerical cognition labs (Ansari, 2023), and new evidence-based courses, like the ones taught by Sachdeva and Hewitt (2023) at Ontario's largest faculty of education, show there is a growing appetite for improving math instruction in our schools. If present trends continue, education leaders, policymakers, district consultants, and informed parents will begin to take more notice from province to province across Canada. Real progress will be achieved when the application of evidence-based practices is recognized as an approach that transcends the progressivist-traditionalist dichotomy in mathematics education. MLI

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References

Anderssen, Erin (2014). Why the war over Math is distracting and futile, *The Globe and Mail*, 1 March.

Ansari, Daniel (2023). Numerical Cognition Lab, The Brian and Mind Institute, Western University, London, ON https://numericalcognition.uwo.ca/

Ansari, Daniel (2019). The Limits of Limitlessness. A Review of Jo Boaler, *Limitless Mind: Learn, Lead and Live without Barriers. Education Next,* 16 December.

Bennett, Paul W (2017). The Growth Mindset; Carol Dweck's Learning Theory and its Canadian Mutation, *Education Canada/EdCan Network*, 3 April. https://www.edcan.ca/articles/the-growth-mindset/

Bennett, Paul W. (2020). *The State of the System: A Reality Check on Canada's Schools.* Montreal and Kingston: McGill-Queen's University Press.

Blume, Howard, and Watanabe, Teresa (2023). California approves math overhaul to help struggling students. But will it hurt whiz kids? Los Angeles Times, 12 July

Boaler, Jo (2019). *Limitless Mind: Learn, Lead and Live without Barriers*. New York: Harper Collins.

Boaler, Jo (2015). *Mathematical Mindsets:* Unleashing Students' Potential through Creative Math, Inspiring Messages and Innovative Teaching**.** San Francisco: Jossey-Bass.

Boaler, Jo (2009). *What's Math Got to Do with It? How Parents and Teachers Can Help Children Learn to Love Their Least Favorite Subject.* London: Penguin Books.

Buck, Daniel (2023). A fundamental miscalculation; California's New Math Framework is Flawed. *City Journal*, 8 August. https://www.city-journal.org/article/californias-math-framework-is-flawed

Bruner, Jerome S. (1961). The act of discovery. *Harvard Educational Review, 31,* 21–32.

California State Board of Education (2023). *Mathematics Framework for California Public Schools: Kindergarten Through Grade Twelve* (*Mathematics Framework*). Sacramento, CA: California Department of Education. https://www.cde.ca.gov/ci/ma/cf/

Caron, Thomas A. (2007). Learning Multiplication: The Easy Way. The Clearing House, 80(6), 278-282.

Conrad, Brian (2023). California's Math Misadventure Is About to Go National. The Atlantic, 2 October. https://www.theatlantic.com/ideas/archive/2023/10/california-math-framework-algebra/675509/

Conrad, Brian (2022). Public Comments on the CMF. Director of Undergraduate Studies in Math, Stanford University. https://sites.google.com/view/publiccommentsonthecmf/

Correa, Priscila (2023). 6 changes in Ontario's not-so-basic new elementary math curriculum. *The Conversation Canada*, 26 November. https://theconversation.com/6-changes-in-ontarios-not-so-basic-new-elementary-math-curriculum-148878

Evers, Williamson M. (2023). California Math Framework: Proven Methods vs. Political Ideology. Independent Education Institute, 22 July. https://blog.independent.org/2023/07/10/californias-flawed-k-12-math-framework/

Groshell, Zach (2023). *Progressively Incorrect*, Education Podcast, Education Rickshaw Blog. Science of Teaching and Learning. https://educationrickshaw.com/

Gross-Loh, Christine (2016). How Praise Became a Consolation Prize. *The Atlantic*, 16 December. https://www.theatlantic.com/education/archive/2016/12/how-praise-became-a-consolation-prize/510845/

Hartman, J. R., Hart, S., Nelson, E. A., and Kirschner, P. A. (2023). Designing mathematics standards in agreement with science. *International Electronic Journal of Mathematics Education, 18*(3), em0739. https://www.iejme.com/download/designing-mathematics-standards-in-agreement-with-science-13179.pdf

Hewitt, Jim and Sachdeva, Nidhi (2023). Should we teach children to memorize the multiplication tables? The Science of Learning Blog, Ontario Institute for Studies in Education, 26 June. https://scienceoflearning.substack.com/p/should-we-teach-children-to-memorize

Hirsch, E. D. (2001). Romancing the Child. *Education Matters*, Vol. 1 No. 1, Spring 2001, 34-39.

Huang, Ling (2020). Stanford Professor Jo Boaler's Math Revolution and the War Against Algebra 2, *Nonpartisan Education Blog*, 28 October.

Institute of Educational Sciences (2023). Math Wars. Washington, DC: United States Department of Education. https://ies.ed.gov/director/speeches2003/02_06/2003_02_06e.asp

Kirschner, Paul A. and Hendrick, Carl (2020). *How Learning Happens: Seminal Works in Education Psychology and What They Mean in Practice.* New York: Routledge.

Lee, Stephanie M. (2023). The Divider: Jo Boaler of Stanford is leading the math-instruction revolution. *Chronicle of Higher Education*, 22 March.

Loveless, Tom (2021). Evidence, Struggling Math Students, and California's 2022 Math Framework. Tom Loveless Blog, 15 May. https://tomloveless.com/posts/evidence-struggling-math-students-and-californias-2022-math-framework/

Mighton, John (2020). *All Things Being Equal: Why Math is the Key to a Better World*. Toronto: Knopf Canada.

Ontario Association for Mathematics Education (2016). Leadership Conference 2016. Keynote Speaker, Jo Boaler, Professor, Stanford University and Co-Founder youcubed, author of *The Mindset Revolution: Teaching Mathematics for a Growth Mindset*. Brampton, ON: Lester B. Pearson International Convention Centre, 4 November.

Ontario Ministry of Education (2020). Growing Success: Match Curriculum, Grade 1-8. Toronto; MoE. https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-mathematics

Stokke, Anna (2015). What To Do About Canada's Declining Math Scores. Commentary No. 427. Toronto: C.D. Howe Institute, May. https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/commentary_427.pdf

Stanford School of Education (2019). An Example of a Growth Mindset K-8 School. Palo Alto, CA: youcubed. https://www.youcubed.org/resources/an-example-of-a-growth-mindset-k-8-school/

Sullivan, Philip A. (2018). Mathematics Teaching in Ontario's Public Schools. Unpublished Research Paper. Produced for Institute for Aerospace Studies, University of Toronto, 19 July.

Wu, Hung-His. (1999). Basic skills versus conceptual understanding: A bogus dichotomy in mathematics education. *American Educator,* 23(3), 1–7. https://www.aft.org/sites/default/files/wu.pdf

Zwaagstra, Michael (2011). Math Instruction That Makes Sense: Defending Traditional Math Education. Winnipeg, MN: Frontier Centre for Public Policy, 21 September. https://fcpp.org/2011/09/21/math-instruction-that-makes-sense-defending-traditional-math-education/

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