CAMPAIGN FOR MATH AS A DRIVER OF EDUCATIONAL EQUITY

FOCUS AREA:

Building Solutions to Reduce Learning Loss in Math

The New Classrooms Campaign

For decades, students' inability to keep pace with middle and high school math standards has been a systemic national problem. New Classrooms leadership—many of whom are former math teachers, principals, district administrators, and public officials—has witnessed personally the painful ways in which a lock-step focus on age-based standardized instruction for all students has inadvertently served as a social sorting mechanism.

This challenge is especially true for Black, Latino, and low-income students who fall behind early in their educational journey and are rarely afforded a real opportunity to catch up. And because jobs requiring science, technology, engineering, and math (STEM) are amongst the fastest growing and highest-paying sectors in our economy, our inability to squarely address these educational inequities has readily converted into broader, societal inequities.

Covid-19 has made this problem even worse. Not only has the virus itself disproportionately and directly impacted communities of color, but disparities in access to technological devices and Internet connectivity have resulted in students falling even further—and dangerously—behind. Schools were ill equipped to meet educational disparities before Covid-19, and their capacities have only been further diminished.

New Classrooms has launched *Math as a Driver of Educational Equity*, a five-year capital campaign focused on transforming the way in which students are taught math as a means to attaining educational equity. In response to the pandemic's impact, New Classrooms has shifted its focus to address the near- and long-term crises stemming from learning loss and the disruptions caused by remote instruction.

A Pressing Need for Transformative Research and Development

Despite significant technological advances achieved in the last decades, schools today continue to operate with many of the same structures and systems that have persisted for over a hundred years. Textbooks, bell schedules, grade-level standards, and age-based learning cohorts, all work together to keep all but the least disruptive of innovations from penetrating the classroom walls. The result is a factory-model classroom that often fails students who enter behind grade level, does not challenge those who enter near the top, and can burn out schools' most valuable resources—teachers.

The current K-12 market is ill-equipped to remedy this challenge. What is required instead of textbooks are new, innovative learning models—comprehensive instructional programs that combine both an academic design that articulates what students learn along with a set of operating structures that shape where, when, and how they learn.

With our flagship model *Teach to One 360*, and a suite of new offerings, New Classrooms is at the forefront of developing new educational approaches that can better serve the needs of more students. *Teach to One 360*, is a holistic, adaptive, multi-modal learning model that enables classrooms to be organized around enabling each student to progress by meeting them where they are. A result of years of rigorous research and development (R&D), *Teach to One 360* has demonstrated its ability to accelerate student learning in a range of school settings. Our newest products build off of these learnings to reach more students nationwide, both in school and also at home.

During the next phase of work, our commitment is to ensure that a vast majority of students can catch up to grade level and achieve proficiency within three school years, despite setbacks caused by Covid-19. We will achieve this by continuing to engage in R&D that leverages advanced analytics techniques, such as machine learning. We will also continue to refine and adapt our learning model so that it can be reliably implemented in a variety of contexts.

Current Research and Development Explorations and Activities

Breakthrough Research and Development

New Classrooms maintains a unique position within the K-12 education space. *Teach to One* generates millions of reliable academic and non-academic data points each year from students across the country. These rich data sets have enabled us to develop deep expertise in the roughly 300 skills that students need to achieve Algebra I proficiency. As a result, we understand on a granular level how those skills and concepts are interrelated, which to prioritize or de-prioritize in given situations, the different ways in which each can be taught, and how to help students accelerate through them.

New Classrooms' R&D has already led to important breakthroughs. For example, we have developed the nation's first K-12 explanatory model that uses historical program data to explain, with more than 90 percent accuracy, whether an individual student's overall performance improved on third party assessments. This model provides a statistical foundation for incorporating predictive analytics into the program itself, better ensuring that each scheduled lesson provides each student with the best opportunity to accelerate toward proficiency.

To move our R&D Learning Agenda forward, every six months, New Classrooms reflects on the activities and learnings that occurred over the course of that period in four key areas of work: capacity building, open explorations, pilots, and new theories. We use this information to inform our priorities for the next six months. These activities, explorations, and learnings are documented on our Learning Agenda Progress Tracker. This document, which serves as our key mechanism to track past and future explorations, is shared with our R&D supporters every six months to ensure ongoing communication of progress, learnings, and future activities. Examples of recent activities and learnings include:

- Using state test data to explore the relationships between student growth on the NWEA MAP exam and state test outcomes

- Refining and exploring what makes students grow

- Developing new Optimization Techniques to manage our "Scheduling Trinity," which balances the needs of the 1) Individuals vs the needs of the 2) Groups vs the needs of 3) Teaching staff

Transformative Solutions

During the Campaign, we will refine our flagship model and also scale our newest offerings to address the urgent crises stemming from learning loss and remote instruction. These solutions include:

- **A Diagnostic Assessment and Academic Road Map for Every Student (Fall 2020)** We developed a diagnostic assessment that leverages state-of-the-art psychometric techniques and algorithms in order to provide a personalized, academic "road map" for students in grades 4-11 that reflects the target skills they must master to graduate ready for college.

- **A Direct-to-Families Solution (2021-2022)** Families will have the opportunity to directly access the diagnostic assessment, the corresponding lesson bank, and a set of home-teaching resources for parents and guardian, able to track progress in real time.

- **An Enhanced Flagship Program (2020-2024)** Throughout the Campaign, we will materially enhance *Teach to One* so that it can operate seamlessly in a remote context while also reducing implementation costs. By the end of this campaign, we will be able to demonstrate a viable way for the majority of students to catch up to grade level within three years.

Informing the Broader K-12 Community

The insights garnered through our R&D can help inform the work of educators, policy makers, and other education leaders, and as such we are committed to disseminating our learnings with the broader education community. For instance, in September 2019, New Classrooms released a report titled *The Iceberg Problem*, which examines the cumulative nature of math, and the need for students to spend instructional time on both pre-grade and on-grade skills to achieve proficiency. New Classrooms will continue to publish similar pieces that summarize our learnings, and collaborate with other experts in the field, through our campaign.

Call to Action

Since its launch in 2012, New Classrooms has continuously enhanced our flagship program: *Teach to One*. Over the course of the *Math as a Driver of Educational Equity Campaign*, we will continue to engage in this intensive work, leveraging advanced computing techniques and our deep understanding of how students learn math to further enhance our flagship model and newest offerings, particularly for those students who have been hit hardest by the disruptions caused by Covid-19.

We invite you to join us in making this important investment in the future of our students to ensure they can reach proficiency and beyond.

Budget for Building Solutions to Reduce Learning Loss in Math

R&D and Scalable Technology	FY20	FY21	FY22	FY23	FY24	Total
Enterprise Technology	2,327	2,681	6,638	6,007	6,096	**23,749**
Program Advancement	2,281	3,325	2,578	4,096	2,494	**14,774**
Open Educational Resources	-	-	-	-	-	**-**
Interim Technology	877	2,011	1,859	819	-	**5,567**
Legacy System Innovation	585	-	-	-	-	**585**
General & Administrative – R&D	1,464	1,371	1,456	1,567	1,385	**7,243**
Total R&D and Scalable Technology	**7,534**	**9,389**	**12,531**	**12,489**	**9,975**	**51,917**