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EDUCATION LAB

High-Dosage Tutoring at Scale

Evidence from a Cost-Effective, Blended-Learning Tutoring Model

The Challenge

Education researchers have long known that small-group tutoring generates some of the "best learning conditions we can devise," in part because it personalizes instruction and provides opportunities for mentorship (Bloom, 1984). For example, prior research has demonstrated that both in-person tutors and education technology are promising methods of delivering effective instruction that is individualized to student needs. Past work by the University of Chicago Education Lab has demonstrated that Saga Education's high-dosage, individualized, during-the-school-day math tutoring model can generate large and significant gains in academic outcomes—*up to two and a half years of additional learning*—in a short period, even among students who are behind grade level (Guryan et al., 2021). However, one significant barrier to scaling-up a promising education intervention like high-dosage tutoring is understanding how the program can be scaled in a cost-effective manner without losing its effectiveness.

The University of Chicago Education Lab, in partnership with Saga Education, Chicago Public Schools (CPS), and the New York City Department of Education (NYC DOE), is currently evaluating the impact of a lower-cost, blended-learning version of Saga's high-dosage tutoring model that incorporates technology to help double the ratio of students to tutors. Preliminary results from our evaluation of this model indicate that participation in this blended-learning model *improves student math test scores by the*

equivalent of an extra one to two years of additional math learning for the typical American high school student, in a single year (Reardon, 2011)—a result that is similar to our initial study of Saga during academic years (AY) 2013-15.[1]

SAGA TECHNOLOGY MODEL AT A GLANCE

Blended-learning model where students alternate daily between working with their Saga tutor and an educational platform

2,000 students offered tutoring in seven CPS & NYC high schools across two years

Rigorous RCT evaluation to assess impact on student academic outcomes. Preliminary results indicate positive impacts on math test scores and math GPA, as well as a decrease in math course failures

The Intervention: Saga Technology

Saga Education is a national non-profit organization that partners with public school districts to implement an individualized math tutoring model where students meet in person in pairs with a tutor once a day, during the school day, in addition to a student's regular math class. As noted, data from two previous randomized controlled trials (RCT)—the gold standard for scientifically determining the effectiveness of an intervention—of this "traditional" model of Saga's program have shown that students who participated in the tutoring intervention gained the equivalent of an extra one to two and a half years of learning over and above what the typical American high school student learns in one year.[2]

Building off of this evidence, Saga, in partnership with CPS and NYC DOE, piloted a new blended-learning version of their traditional tutoring model in AY 2018-19 and 2019-20 with the aim of reducing program costs while maintaining the effectiveness found in the previous evaluations of Saga's tutoring model. Under this new "Saga technology" model, participating students received Saga programming every day, alternating between a full-day of working with their in-person tutor and a full-day of individually engaging with an education technology platform. Each tutor taught for six periods per day and had a caseload of 24 students, for an overall student-tutor ratio of approximately 4:1 for each tutor. Saga utilized the **ALEKS technology platform** for the educational platform component of the model, which has diagnostics that inform instruction on an individual level, as well as adaptive questioning that is tailored to each student's unique needs.

To test the efficacy of this blended-learning model, the UChicago Education Lab (in partnership with Saga, CPS, and NYC DOE) conducted a two-year RCT in AY2018-19 and AY2019-20 with over 3,900 9th grade students across seven CPS and NYC public high schools. For the evaluation, students were randomly assigned to one of two study arms: (1) Saga technology, in which students alternated daily between their in-person Saga tutor and the ALEKS educational platform, and (2) a control group in which students received status quo school and community supports.

Results

Preliminary results from the first study year (AY2018-19) finds that **Saga participants see improvements in math test scores and grades, as well as reductions in math course failures.** Specifically, our analysis suggests that the program significantly increased math scores by 0.24 standard deviations, increased math course GPAs by 0.21 points (on a 4.0 scale), and reduced the number of math course failures by 20% for students who received Saga compared to their peers who did not.

These early results from our six CPS and NYC high schools in AY2018-19 are promising and suggest that participation in this blended-learning model improved student math test scores by the equivalent of **an extra one to two years of math learning** over and above the typical American high school student—again a result that is comparable to the impact found for our previous evaluation of Saga's traditional model.[3]

These preliminary results provide encouraging early signs that Saga's blended-learning model may be able to preserve the positive effects of Saga's traditional model while also reducing the cost of the program—an important feature for achieving impact at scale. *However, we note that our analysis is still ongoing, so these results are subject to change.*

Saga improved student math test scores by the equivalent of an extra one to two years of math learning

More Information

For more information on the Saga Education evaluation, please contact Monica Bhatt, Senior Research Director at the Education Lab, at **mbhatt@uchicago.edu**. For more information on the Saga Education tutoring intervention, please contact Alan Safran at **asafran@sagaeducation.org**.

Endnotes

1   Based on data from our six CPS & NYC study schools in AY2018-19. For study year two (AY2019-20), an additional CPS high school was added to bring our total to seven study schools across Chicago and NYC.

2   See Guryan et al., 2021.

3   Reardon (2011) estimates that the average high school student gains between 0.6 and 0.7 standard deviations (SD) in math test scores from 8th and 12th grade, or approximately 0.15-0.175 SD per year.