# Quarterly Research Note

Accelerate
The National Collaborative for Accelerated Learning

Volume 1, Issue 3 November 2024

## Introduction

Welcome to the third issue of the Quarterly Research Note (QRN), a research brief that reflects Accelerate's approach to learning what educational interventions work, for which students, and under what conditions.

In this issue, we profile Accelerate's third round of Call to Effective Action (CEA) grantees. The CEA identifies and funds tutoring and personalized instruction models that deliver cost-effective services on a large scale to improve student outcomes, particularly in historically underserved communities. For each CEA grantee, Accelerate provides strategic guidance, in partnership with its trusted research partners, on the design and implementation of research and evaluation studies. In Part I, we describe the research studies for each CEA grantee during the 2024-25 school year and summarize program design characteristics.

In this issue's Research Roundup, we profile two recent randomized controlled trials (RCT) evaluating the impact of Accelerate grantees during the 2023-24 school year: Air Reading, a virtual tutoring program; and KIPP Indy, an open-enrollment public charter school which designed and implemented an in-person tutoring program. We then profile OKO Labs, an Accelerate grantee that completed an implementation study of its collaborative learning platform. We conclude by describing new evidence on the impact of tutoring at scale from a recent meta-analysis of tutoring program impacts.

In Looking Ahead, we introduce Accelerate's forthcoming research report, which will provide guidance to identify and calculate valid programmatic cost data. We then introduce readers to Accelerate's inaugural Research Learning Community (RLC), which brings together Accelerate's research and strategic thought partners into a dynamic community of

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education scholars and researchers. We conclude by describing a newly launched partnership with the Arkansas Department of Education (ADE) and the Walton Personal Philanthropy Group during the 2024-25 school year to study two aspects of Arkansas' LEARNS Act: the impact of select high-dosage tutoring programs on student learning outcomes; and a mixed methods evaluation of the Literacy Tutoring Grant Program (LTGP).

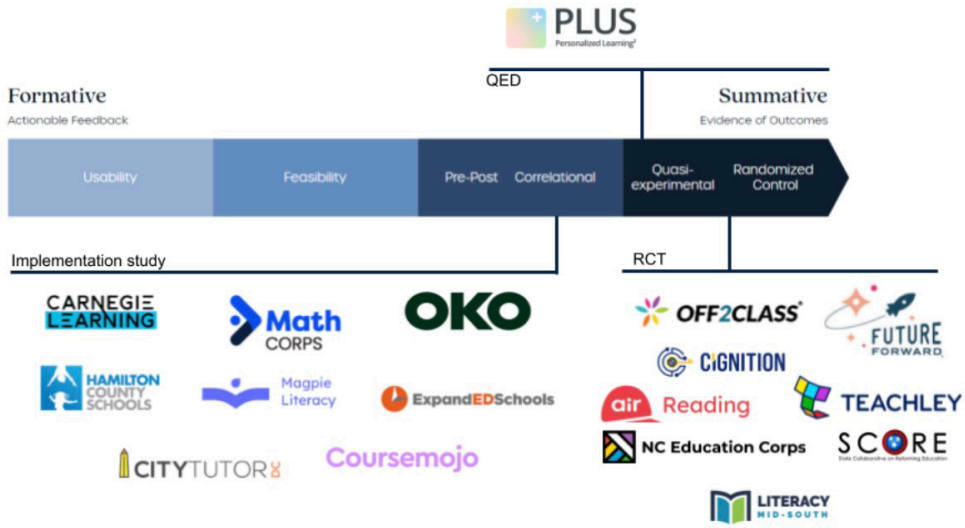
Part One

# CEA Research Studies and Program Design Characteristics

In June 2024, Accelerate launched its third round of Call to Effective Action (CEA) grantees. As part of the CEA grant program, Accelerate works with each CEA grantee and their research partner to design research and evaluation studies that correspond to Accelerate's research evidence continuum. In QRN 1.1, we introduced readers to Accelerate's research evidence continuum, which maps the specific grant types that Accelerate supports (Innovation, Promise) to specific categories of research evidence progressing from descriptive, foundational evidence on program design and implementation (i.e., usability and feasibility) to correlational evidence on changes in student outcomes associated with program participation (i.e., pre-post and correlational evidence) to more rigorous evidence on program impact based on research designs sufficient to support causal inference, including quasi-experimental designs (e.g., regression discontinuity) and RCTs.

Figure 1 presents the research evidence continuum and the location of the research study for each of 17 CEA grantees (10 Innovation; 7 Promise). In the 2024-25 school year, seven (of ten) CEA Innovation grantees and one Promise grantee are launching implementation studies, which focus on research questions related to the usability and feasibility of the tutoring program model and initial correlational evidence on the association between tutoring and student outcomes. Across these implementation studies, research questions include (but are not limited to): How are the usability and usefulness of the tutoring program perceived by tutors, students, teachers, and/or families? Were core components of the tutoring model implemented as intended? What factors affected implementation quality? What is the average dosage of tutoring students received, and to what extent does dosage vary across students and schools?

**Figure 1.** Distribution of CEA Grantee Research Studies



On the outcome side, implementation studies explore the extent to which student learning improves among students who receive tutoring. To develop initial correlational evidence on tutoring program impact, these studies include approaches such as pre-post changes in student outcomes among tutored students and matched comparison groups of tutored and non-tutored students (i.e., propensity score matching). Notably, three CEA Innovation grantees are pursuing small-scale pilot RCTs - with less than 350 students randomized - to develop initial evidence on program impact. Among the six CEA Promise grantees pursuing impact evaluations, one grantee's research study relies on a regression discontinuity design and five grantees are implementing well-designed RCTs. Following Accelerate's research agenda, we define a well-designed RCT as one that includes at least 350 randomized students in the study sample. This is a key study criteria for meeting What Works Clearinghouse and ESSA Tier 1 evidence standards, providing a more complete picture of tutoring impact at scale.

Table 1 summarizes the program design characteristics of each of the 17 CEA grantees:

- 9 grantees provide ELA tutoring, 6 grantees provide math tutoring, and 2 grantees tutor in both subjects.
- 6 grantees tutor in-person, 5 grantees tutor virtually (synchronously), 1 grantee uses AI as the primary modality, 3 grantees provide tutoring in hybrid formats (i.e. more than one modality), and 2 grantees (CityTutor DC and ExpandED Schools) serve as city-wide coordinating entities, managing a portfolio of tutoring providers delivering sessions via multiple modalities (e.g., virtual, in-person, hybrid, and/or AI-assisted).

CEA grantees rely on a range of tutor types, including certified teachers, paraprofessionals, teacher candidates, college students, volunteers, peers, and parents. Coursemojo and OKO Labs rely on AI-generated content for collaborative learning without a reliance on human tutors. Across the grantees, the tutor:student ratio is typically 1:1 - 1:4, with an intended dosage of, on average, 3 sessions per week (for an average of 31 minutes/session) for 21 weeks for a total of 31 tutoring hours. These program design features are consistent with how Accelerate and the field defines high-dosage tutoring.

**Table 1.** Program Design Characteristics

| Organization | Grant Type | Grade(s) Served | Subject(s) | Modality | Tutor Type | Tutor:Student Ratio | Sessions per week | Minutes per session | Total Weeks |
|---|---|---|---|---|---|---|---|---|---|
| Air Reading | Promise | 1-6 | ELA | Virtual Synchronous | T; PP | 1:4 | 4 | 40 | 20 |
| Carnegie Learning | Innovation | 6-8 | Math | Virtual Synchronous | T | 1:4 | 3 | 30 | 10 |
| Cignition | Promise | 4-5 | Math | Virtual Synchronous | T; TC | 1:4 | 4 | 30 | 30 |
| CityTutor DC | Innovation | K-9 | ELA, Math | Multiple Modalities*^ | CS; TC; O | ≤1:4 | 2-4 | 45 | 10 |
| Coursemojo | Promise | 6 | ELA | AI; In-Person* | AI | 1:1 | 4 | 15 | 30 |

| Organization | Grant Type | Grade(s) Served | Subject(s) | Modality | Tutor Type | Tutor:Student Ratio | Sessions per week | Minutes per session | Total Weeks |
|---|---|---|---|---|---|---|---|---|---|
| ExpandED Schools | Innovation | K-2 (ELA), 6-8 (Math) | ELA, Math | Multiple Modalities*^ | T; CS; PP; P; S; TC;V | 1:1-1:4 | 3 | 30 | 10 |
| Future Forward | Innovation | K-5 | ELA | In-person | PP; TC; T | 2:5 | 3 | 30 | 16 |
| Hamilton County Schools | Innovation | K-5 | ELA | In-person | S | 1:2 | 2-3 | 30 | 20 |
| Literacy Mid-South | Promise | 3-5 | ELA | In-person | T; PP; V; O | 1:3 | 3 | 45 | 24 |
| Magpie Literacy | Innovation | K-1 | ELA | AI; Virtual Asynchronous* | T; PP; V; O | 1:1 | 2-3 | 15 | 34 |
| Math Corps | Innovation | K-3 | Math | In-person | O | 1:2-1:3 | 3-5 | 20 | 12 |
| North Carolina Education Corps | Promise | K-2 | ELA | In-person | T; PP | 1:3 | 3 | 30 | 26 |
| Off2Class | Innovation | 9-12 | ELA | Virtual Synchronous | T; CS; PP; V; TC | 1:1-1:3 | 2-3 | 30 | 18 |
| OKO Labs | Innovation | 3-6 | Math | AI* | AI | 1:4 | 2-3 | 20 | 12 |
| PLUS Tutoring | Promise | 6-8 | Math | Virtual Synchronous* | CS; TC | 1:1-1:8 | 1-2 | 50 | 38 |
| Teachley | Innovation | 2-4 | Math | In-person; Virtual Asynchronous | PP; CS; TC; P | 1:4 | 3 | 30 | 26 |
| TN SCORE | Promise | K-3 | ELA | In-person | T; PP; O | 1:3-1:5 | 3 | 30 | 20 |

***Notes:*** For *Modality,* * indicates that the tutoring modality is supported by Artificial Intelligence (AI); ^ indicates that the grantee is partnering with a portfolio of schools that employ different tutoring modalities. Coursemojo and OKO Labs rely on AI-generated content for collaborative learning, without a reliance on human tutors. For *Tutor Type,* T indicates certified teachers; PP indicates paraprofessionals; P indicates parents; TC indicates teacher candidates; V indicates volunteers; S indicates student peers; CS indicates college students; AI indicates the use of an artificial intelligence tool; and O indicates others.

Part Two

# Research Roundup

In this Research Roundup, we describe new and emerging findings on tutoring impact (Air Reading and KIPP Indy) and implementation (OKO Labs) from Accelerate's 2023-24 portfolio of grantees. We conclude by describing new evidence on the impact of tutoring from a recent meta-analysis of tutoring program impacts.

## The Promise of Virtual Tutoring, Revisited

Air Reading partnered with Crandall Independent School District in rural Texas to provide early literacy tutoring to 156 students in grades 1-6 in 6 schools in the spring semester of the 2023-24 school year. Air Reading is a virtual tutoring program designed to improve students' foundational reading skills. The Air Reading model is grounded in the Science of Reading, provides skill-based instruction to students using a proprietary reading curriculum, and is delivered by paid tutors via virtual synchronous instruction.

Air Reading partnered with the Center for Research and Reform in Education (CRRE) at Johns Hopkins University, an Accelerate research partner, to conduct a rigorous evaluation. Eligible students - those identified as needing additional reading intervention - were randomly assigned to either the treatment group (156 students) or control group (225 students). Students in the treatment group received live virtual instruction in groups of 3 (i.e., 1:3 tutor-student ratio) from consistent tutors in 30-40 minute sessions four times per week throughout the spring semester; students in the control group continued to receive business as usual instructional support during the time that students in the treatment group were tutored.

Findings indicate that assignment to Air Reading tutoring significantly improved student reading achievement, as measured by the Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) reading assessment, compared to students

### STUDY SNAPSHOT | Air Reading

**PUBLISHED:** August 2024

**RESEARCH TEAM:** Center for Research and Reform in Education (CREE) at Johns Hopkins University

**STUDY PERIOD**: 2023-24 school year (spring)

**RESEARCH METHOD**: Randomized Controlled Trial (RCT)

**STUDENT GROUP(S) STUDIED:** Among grade 1-6 students in 6 schools in a rural district in Texas, 156 students randomly assigned to receive Air Reading tutoring.

**STUDY QUESTIONS**:

- What is the effect of Air Reading on reading achievement for students performing below grade level, in comparison to similar students performing below grade level receiving business-as-usual teaching?
- How do the effects of Air Reading differ by race, ethnicity, English learner status, special education status, economic status, and grade level?
- To what extent is dosage received associated with better student outcomes?

**KEY FINDINGS**:

- Statistically significant and substantive impact of tutoring on student reading achievement.
- No significant differences in the impact of tutoring by student characteristics.
- Students receiving at least 40 tutoring sessions realized significant improvements in reading achievement compared to students receiving fewer than 40 sessions.

**KEY TAKEAWAYS**:

- Initial experimental findings from Air Reading suggests that virtual tutoring offers promise as a model for scaling effective tutoring interventions.

who were randomly assigned to the control group. Reporting on a range of outcome metrics, the reading achievement of tutored students improved by 0.12 standard deviations (SD), corresponding to 1.6 additional months of learning. Based on Accelerate's *Tutoring Efficiency* measure (introduced in QRN 1.2), this effect translates into 25.8 hours of tutoring instruction to improve student reading achievement by one additional month. And while the impact of Air Reading tutoring did not vary, on average, across students with different observable characteristics (including race/ethnicity, gender, English learner status, special education status, socioeconomic disadvantage, or grade level), the impact of Air Reading tutoring differed depending on the level of dosage. Notably, students who received at least 40 tutoring sessions (the intended dosage), realized significantly larger gains of 0.17 SD, or approximately 2 additional months of learning, in reading achievement versus treated students who received fewer than 40 total sessions. Among treated students, 62 percent received at least 40 tutoring sessions (with a mean session count of 39.8).

Evidence from Air Reading's evaluation not only reinforces the important role of dosage for maximizing the potential impact of tutoring, but it also offers new insights into the promise of virtual tutoring in small group settings. Prior experimental evidence on virtual tutoring from Texas (described in QRN 1.1) found that online tutoring in 1:1 settings improved reading achievement among early elementary students by an additional 1-1.5 months of learning; yet, in that same study, students receiving online tutoring in larger groups - 1:2 tutor-student ratio - did not realize any improvements relative to the control group. These initial experimental findings from Air Reading - notably, the fact that student achievement improved significantly in group settings with a 1:3 tutor-student ratio - suggests that virtual tutoring offers promise as a model for scaling effective tutoring interventions. Accelerate's research agenda points to the need for replication trials to enable insight into the generalizability and reliability of Air Reading's program impact across different schooling settings. As such, Air Reading is completing a replication study with a Louisiana district in the 2024-25 school year, as an Accelerate Promise Grantee (see Table 1).

### Tutor-Student Ratio, Session Frequency, and Middle School Math Achievement

KIPP Indy is an open-enrollment public charter school serving 1,500 students in grades K-12, of which 97 percent are economically disadvantaged. KIPP Indy first implemented its in-school high-dosage tutoring program during the 2021-22 school year with 150 students in grades 3-8, and expanded the reach of tutoring to over 200 grade 2-9 students in the 2022-23 school year. KIPP Indy partnered with a local tutoring company College Tutors of Indiana to supply the tutors (comprised mostly of college students and recent college graduates), and KIPP provided tutor training and ongoing professional development to align tutor instruction with KIPP's Tier 1 curriculum and instruction.

Beginning in the spring semester of the 2023-24 school year, KIPP Indy's middle school partnered with a researcher from the University of Chicago to design and implement a three-arm randomized controlled trial (RCT) of in-person math tutoring. The 343 KIPP Indy middle school students in grades 6-8 were randomly assigned to one of three treatment arms: in-school math tutoring in groups of 2 students (i.e., 1:2 tutor-student ratio); in-school math tutoring in groups of 3 students (1:3 tutor-student ratio); or the business-as-usual condition (students randomly assigned to tutoring were pulled from science or history class). The 62 students randomly assigned to 1:2 tutoring received two 30-minute sessions per week, whereas the 87 students assigned to 1:3 tutoring received three 30-minute sessions per week. Notably, the per pupil cost of tutoring was fixed across the 1:2 and 1:3 tutoring groups, at $40 per week per student (this cost includes solely the labor costs associated with the tutors). By holding tutor labor costs constant, this study enables an assessment of whether the returns to tutoring differ when tutoring group size and session frequency vary.

### STUDY SNAPSHOT | KIPP Indy

**PUBLISHED:** August 2024

**RESEARCH TEAM:** University of Chicago (Rohen Shah)

**STUDY PERIOD**: 2023-24 school year (spring)

**RESEARCH METHOD**: Randomized Controlled Trial (RCT)

**STUDENT GROUP(S) STUDIED:** Among grade 6-8 students in KIPP Indy middle school, 62 students were randomly assigned to receive tutoring in groups of 2 students (2:1) and 87 students were randomly assigned to receive tutoring in groups of 3 students (3:1).

**STUDY QUESTIONS**:

- What is the impact of KIPP Indy middle school's in-school, high-dosage math tutoring program on test scores?
- Is 2:1 tutoring more effective than 3:1 tutoring if the per-student budget is held constant?
- Do low-performing students gain more from tutoring than high-performing students?

**KEY FINDINGS**:

- Students in both treatment arms (2:1 and 3:1) attended approximately two-thirds of the intended number of total tutoring sessions.
- The less frequent 2:1 groups led to a significant increase in math skills - on the order of 0.24 SD.
- No statistically significant difference in math skills between students who received 3:1 tutoring and control students who received no tutoring.
- Low-performing students benefit similarly from tutoring as their higher-performing peers.

**KEY TAKEAWAYS**:

- The 2:1 tutoring model led to a large, meaningful impact on student math achievement that is also highly cost effective.

As expected given the design of the RCT, tutoring dosage varied across the 1:2 and 1:3 treatment groups. Among students randomly assigned to the 1:2 group, the median number of tutoring sessions in the spring 2024 semester was 16 (approximately 1.3 sessions/week); among students in the 1:3 group, the median number of sessions was 21 (approximately 1.8 sessions/week). Students in both treatment arms attended approximately two-thirds of the intended number of total tutoring sessions. Though the relative share of intended sessions did not vary across the 1:2 and 1:3 groups, the impact of tutoring did. As measured by the end-of-year NWEA MAP math assessment, tutoring in the less frequent 1:2 groups led to a significant increase in math skills - on the order of 0.24 SDs, or approximately 6 months of additional learning - despite having the same tutor costs as the tutoring in the more frequent 3-student groups. This means that, for 1:2 in-person tutoring with an intended dosage of 2 sessions/week at 30 minutes/session over 12 weeks (for a total of 12 hours of intended tutoring dosage), approximately 2 hours of tutoring is required to improve middle school math achievement by one month (i.e., *Tutoring Efficiency*). This is a large, meaningful impact of the 1:2 tutoring model, and which is also highly cost effective at approximately 13 additional months of learning gained by investing $1,000 per pupil (based on Accelerate's measure of cost effectiveness). In contrast, there was no differential impact of tutoring in the 1:3 groups; that is, there was no statistically significant difference in math skills between students who received 3-student group tutoring and the control students who received no tutoring.

The impact of the 1:2 model on student math achievement is significant. Yet, as we think about the potential to scale promising, school-based in-person tutoring models, it is important to understand the context in which the 1:2 model (with fewer sessions) led to such large impacts on student learning while the 1:3 model (with more sessions) did not improve student outcomes, even at the same tutor costs per pupil. KIPP leaders and researchers involved in this study underscored the fact that the tutors tended to have limited (to no) prior experience implementing a 1:3 model, while many of the tutors had prior experience tutoring KIPP students in 1:1 and 1:2 settings. KIPP leaders also indicated that the tutors - most of whom tutored students in both the 1:2 and 1:3 treatment arms as

part of this evaluation - may not have had the necessary preparation and training to pivot to working with an additional student. While more work is necessary to better understand the mechanisms which led to differential impacts for students randomly assigned to groups of two or three students, these findings from KIPP Indy offer promise for the potential of school-based tutoring interventions to support student learning in cost effective ways. And, by incorporating multiple treatment arms into the evaluation, the KIPP Indy study offers needed empirical evidence on the impact of specific program design features - in this case, tutor-student ratio - documented in Accelerate's research agenda.

## Supporting Personalized Math Instruction with AI-Powered Collaborative Learning

OKO Labs is developing and testing a collaborative learning platform to support teacher instruction and drive improvements in student math skills and social emotional competencies. During the spring 2024 semester (specifically, January–February 2024), OKO partnered with researchers at WestEd to conduct an implementation study to examine the feasibility and usability of a new collaborative game, *Let's Talk*, with 299 students and 10 teachers in grades 4-5 in traditional and charter schools in Georgia and Tennessee. Teachers were asked to use OKO in their classrooms for 20-minute sessions twice a week during the two-week implementation period, during which teachers communicated with WestEd researchers if they encountered any technical or study-related issues. Researchers also scheduled classroom observations and teacher interviews over the course of the implementation period. Data for the implementation study consisted of student pre- and post-assessments and surveys, classroom observations, and teacher end-of-study interviews. Teachers also received reports on student usage data, which consisted of information on dosage - how much time students played the game and when students logged into and out of the game during the usage period.

### STUDY SNAPSHOT | OKO Labs

**PUBLISHED:** March 2024

**RESEARCH TEAM:** WestEd

**STUDY PERIOD**: 2023-24 school year (spring)

**RESEARCH METHOD**: Implementation Study (descriptive and correlational methods)

**STUDENT GROUP(S) STUDIED:** 299 students in grades 4-5 along with six grade 4 and four grade 5 teachers from one traditional public school in Tennessee and three charter schools in Georgia.

**STUDY QUESTIONS**:

- Do students show increased proficiency with fractions and stronger social emotional competencies after using *Let's Talk*?
- During classroom use, does OKO effectively prompt students to engage in discussion and collaborative problem solving?
- Are teachers able to use the teacher reports from OKO to support their instruction?
- Do the training and teacher preparation materials sufficiently prepare teachers to use *Let's Talk* to facilitate small group problem solving sessions?

**KEY FINDINGS**:

- *Let's Talk* focused on fractions, and student participation in the game was correlated with improvements in that specific math skill.
- Students who participated in *Let's Talk* showed improvements in their anxiety toward math; students' interest in and motivation towards math did not change.
- Students showed high levels of engagement with *Let's Talk*; yet, lower-performing students and special education students struggled to engage with the *Let's Talk* game.
- Teachers reported that the Oko-provided reports on student usage of *Let's Talk* were not particularly useful for supporting instruction, primarily due to limited information provided on the reports.
- Teachers reported that the training and preparation materials for *Let's Talk* were sufficient for implementation, and that the implementation of *Let's Talk* required minimal lesson preparation.

**KEY TAKEAWAYS**:

- Evidence from this implementation study suggests that *Let's Talk* is a viable tool for supporting instruction and student learning during math lessons, but requires additional development and more rigorous testing and evaluation.

The *Let's Talk* study focused on fractions content, and student participation in the game was correlated with improvements in that specific math skill. Though this evidence is not causal, changes in students' fraction skills during the relatively short implementation period are promising (given the small sample size and lack of a comparison group, further studies using an experimental design would be necessary to establish a causal impact, if any, of *Let's Talk* on student math skills). Students who participated in *Let's Talk* exhibited significant improvements in their reported level of anxiety toward math; yet, students' reported interest in and motivation towards math did not change following participation. On use and usability, the study found that students showed high levels of engagement, with most students reporting that they enjoyed playing the game, understood the content, and found it easy to play the game. In the majority of observed gameplay sessions, students engaged in conversation about the math lesson content and frequently asked related questions. Yet, lower-performing students and special education students struggled to engage with the game.

Overall, teachers reported that *Let's Talk* would add more value to student learning once OKO expanded the curriculum covered by the game.Teachers whose students were performing below grade level in math suggested that *Let's Talk* incorporate greater instructional differentiation so that students at different levels could still access and play the game. Teachers also reported that OKO's nascent reports on student usage of *Let's Talk* were not particularly useful for supporting instruction, primarily due to limited information provided on the reports, and thus required additional detail to prove truly useful. Teachers did report that the training and preparation materials from OKO were sufficient for implementation, primarily because the platform did not require extensive individual preparation and required minimal lesson preparation on behalf of teachers, who envisioned their role as a facilitator when implementing *Let's Talk*.

This implementation study reveals the potential promise of AI-powered learning games to support teacher practice and offer more targeted and personalized instruction to students. In the case of OKO, a few notable recommendations emerged from this study, including: expand the content covered and better differentiate instruction for all students; incorporate additional resources into the game to support students' conceptual understanding; introduce additional game features to increase student engagement and group collaboration; and improve the user experience by enhancing the look and feel of the game. At the same time, evidence from this implementation study suggests that OKO is a viable tool for supporting instruction and student learning during math lessons, but one that requires additional development and more rigorous testing and evaluation.

## Going to Scale: New Meta-Analytic Evidence on Tutoring Program Impacts

In Accelerate's May 2024 report, we summarized existing evidence on tutoring program impact from Nickow et al. (2023), a meta-analysis of 89 randomized controlled trials (RCT) of a variety of tutoring programs and providers. Nickow et al. (2023) show that tutoring improves student achievement by, on average, 0.29 standard deviations (SD). Yet, only 15 of the 89 RCTs included in Nickow et al. (2023) would meet the highest standards of evidence based on study sample size. Nickow et al. (2023) show that the average impact of tutoring was 0.20 SD based on the 15 RCTs with a total study sample of at least 400 students. Notably, this impact remains larger in magnitude than other educational interventions, including class size reduction, vacation academies, summer school, and extended school day/year (Kraft & Falken, 2021).

To better understand the potential impact of tutoring at scale, the field requires evidence from RCTs with larger sample sizes. A new working paper by Kraft, Schueler, and Falken, titled "What Impacts Should We Expect from Tutoring at Scale? Exploring Meta-Analytic Generalizability," provides additional evidence that the magnitude of tutoring program impact varies depending on study sample size. Kraft et al. (2024) update and extend Nickow et al. (2023) by including 265 RCTs of tutoring programs and providers in their study sample. Of the 265 RCTs, 157 RCTs include 0-99 treated students (i.e., students in the treatment group randomly assigned to receive tutoring); 79 include 100-399 treated students; 20 include 400-999 treated students; and 9 include at least 1,000 treated students. Kraft et al. (2024) show that, consistent with prior meta-analytic estimates, the impact of tutoring is large (0.42 SD) across the full sample of RCTs, while noting that literacy tutoring programs serving elementary grade students comprise 73 percent of their study sample. (Accelerate's research agenda points to the need to study the impact of tutoring programs serving students older than grade 2, especially literacy programs for students in grades 6-12.) The authors further show that the impact of tutoring declines as the number of students randomly assigned to tutoring increases. Focusing on a subset of the full sample that includes RCTs in domestic settings (i.e., U.S.) with standardized tests as the outcome measure, the overall meta-analytic effect is 0.35 SD - very similar to the overall meta-analytic effect of 0.29 SD in Nickow et al. (2023). And by the count of treated students, the impact of tutoring is: 0.44 SD (0-99 treated students); 0.30 SD (100-399 treated students); 0.21 SD (400-999 treated students); and 0.16 SD (at least 1,000 treated students). As Kraft et al. (2024) note, "effect sizes between 0.16 SD and 0.21 SD are of medium to large magnitude and still very impressive for large-scale education interventions."

Importantly, Kraft et al. (2024) show that a bundle of program design features are critical for mitigating the attenuated impact of tutoring at scale. Consistent with Accelerate's definition of high-dosage tutoring, these program design features include: tutoring occurs in-person during school hours; tutoring is individualized with a student:tutor ratio of no greater than 3:1; tutoring is intensive with at least three sessions per week; tutoring is sustained with at least 15 hours of total tutoring dosage; and tutoring is based on high-quality instructional materials.

Part Three

## Looking Ahead

In May 2024, Accelerate released the research report, "Contextualizing the Impact of Tutoring on Student Learning: Efficiency, Cost Effectiveness, and the Known Unknowns." In this report, which we profiled in QRN 1.2, we proposed a measure of the cost effectiveness of tutoring program impact, which we define as the additional months of student learning produced at a fixed (per pupil) cost of $1,000. As we write in the report: "Notably, while this measure of cost effectiveness is straightforward by design, it requires valid cost data in order to accurately measure an educational intervention's cost effectiveness." Our next research report, to be published in winter 2024, will provide guidance to program providers, researchers, and policymakers to identify and calculate valid programmatic cost data. Specifically, this report will: (i) describe existing approaches to costing out educational interventions; (ii) leverage existing approaches - in particular, the Ingredients Method - to identify inputs to educational production; (iii) draw upon existing literature to cost out inputs to educational production; and (iv) present a standardized approach - and a costing out tool - that various stakeholders can apply to cost out educational interventions. In the coming months, we look forward to sharing this report and associated costing out tool to support the identification and collection

of programmatic cost data for Accelerate's grantees and for tutoring program providers (and educational interventions) more broadly.

In July 2024, Accelerate announced its inaugural Research Learning Community (RLC), which brings together Accelerate's research and strategic thought partners into a dynamic community of education scholars and researchers. The RLC, which will convene quarterly (through January 2026) to share learnings from ongoing research and evaluation studies, will pursue the following goals: develop a portfolio of rigorous empirical evidence on the design, implementation, and impact of tutoring and personalized learning; provide a collegial forum for members to exchange ideas, share inquiries, and provide feedback on research design, methods, analysis, and evidence generation; disseminate evidence on what works, for which students, and in what educational settings; and inform and support knowledge generation and decision-making among multiple stakeholders - state and local education leaders, policymakers, researchers, philanthropic community. In September 2024, the RLC held its first quarterly meeting, providing a forum for members to engage on key issues as we work together to build an evidentiary base in partnership with Accelerate's grantee portfolio.

In fall 2024, Accelerate launched a new research project in Arkansas, deepening Accelerate's existing partnership with the Arkansas Department of Education (ADE), one of five states that received a States Leading Recovery (SLR) grant. The project, funded by the Walton Personal Philanthropy Group (WPPG), focuses on two aspects of Arkansas' LEARNS Act. The first study identifies and partners with districts in Arkansas participating in the High Impact Tutoring Pilot to implement rigorous program evaluations - specifically, randomized controlled trials (RCTs) - of select tutoring providers. Accelerate's research partner - the Center for Education Policy Research (CEPR) at Harvard University - will be leading the evaluation of at least three tutoring providers across multiple school districts in Arkansas during the 2024-25 school year. The second study examines the Literacy Tutoring Grant Program (LTGP), which provides a $500 grant to eligible students in grades K-3 for supplemental literacy support via after-school tutoring. The focus of the study is to identify strategies that schools and districts can implement to improve student participation and take-up in the state's LTGP. Accelerate's research partner - the Department of Education Reform at the University of Arkansas - will be leading a mixed methods evaluation of the LTGP during the 2024-25 school year.

**We welcome readers to share with Accelerate research studies that examine the design, implementation, and/or impact of tutoring programs and personalized learning initiatives. Please contact Matthew Steinberg, Accelerate's Managing Director of Research and Evaluation, with any research studies you wish to share for potential inclusion in a future issue of the Quarterly Research Note.**