88% of Students Showed Geometry Growth After AI-Facilitated Small Group Discourse

About The Kindezi Schools

- Atlanta, GA
- Kindezi at Gideons Elementary
- K–5, 323 students
- 98% minority populations
- 100% free and reduced lunch

The Kindezi Schools

ATLANTA PUBLIC SCHOOLS

CHALLENGES

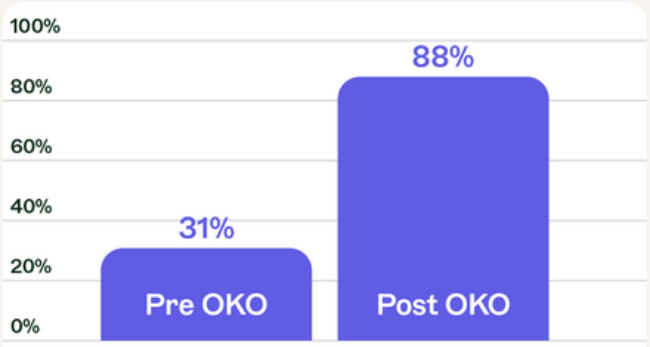
- 94% of students were performing two or more grade levels below in geometry
- The goal was to build meaningful math talk into all small-group instruction
- Students reported low confidence and anxiety around geometry concepts

IMPLEMENTATION

- 4th grade, small groups
- During Tier 1 instruction, after whole class lesson
- 2 days, ~30 minutes per week
- Implemented following mid-year diagnostics

RESULTS

- Geometry growth increased from 31% to 87.5% following OKO implementation
- AI-facilitated discourse sustained meaningful math conversations across small groups without requiring constant teacher facilitation
- Students described increased confidence and willingness to engage in geometry discussions



% Growth in Geometry
Mid year to end of year

88% of Students Showed Geometry Growth After AI-Facilitated Small Group Discourse

At The Kindezi School at Gideons Elementary, geometry had become a persistent challenge. Despite targeted instruction earlier in the year, students in a fourth-grade co-taught classroom were showing minimal progress in one of math's most conceptually demanding domains. For Kelsey Nesbitt, a fourth-grade math teacher, addressing geometry growth became a personal and professional priority.

Kindezi at Gideons serves a high-need student population, with all students qualifying for free or reduced-price lunch and a student body that is 96.8% minority. The school places a strong emphasis on supporting both academic success and family well-being, offering wraparound services such as free grocery access, counseling, and housing support. Within this context, improving math outcomes, particularly geometry, was an instructional imperative.

The Challenge: Limited Growth in Geometry

By mid-year, diagnostic data revealed a clear pattern: geometry was the lowest-performing math domain in the classroom. From the beginning of the year to the middle of the year, only 31% of students showed growth in geometry, and some students demonstrated flat or declining performance. These trends mirrored broader concerns at the school and network level, where leadership had observed minimal geometry growth across grades three through five over multiple years.

Students themselves expressed low confidence in geometry, often describing the subject as confusing or intimidating.

Traditional instructional approaches were not yielding the depth of understanding students needed to reason about shapes, attributes, and spatial relationships.

Kelsey began asking a different question—not just about what students were learning, but how they were engaging with the content.

A New Approach: Mathematical Discourse in Small Groups

Midway through the year, Kelsey introduced OKO, an AI-driven platform designed to facilitate mathematical discourse during small-group instruction. Rather than replacing teaching, OKO was intentionally positioned as a complement to teacher-led instruction.

> **"What would happen if we took the teacher away from the small groups and we let the AI lead the mathematical discourse?"**
>
> - K. Nesbitt, Math Teacher

Each week followed a consistent structure. On Mondays and Tuesdays, students received teacher-led small-group instruction focused on geometry concepts such as shapes and their attributes. Groups were differentiated based on i-Ready diagnostic data, ensuring instruction was aligned to student needs.

On Wednesdays and Thursdays, after providing instruction, students engaged in mathematical discourse using OKO. These sessions totaled approximately 20–30 minutes per week. Students were presented with geometry problems to solve independently, then prompted by the platform to explain their thinking, respond to peers, and work collaboratively when answers differed.

As Kelsey described it:

> "After solving each problem, they would then come together to have conversations about why they chose that answer, and if they all ended up getting it wrong, they would then work together to decide which one could be right."

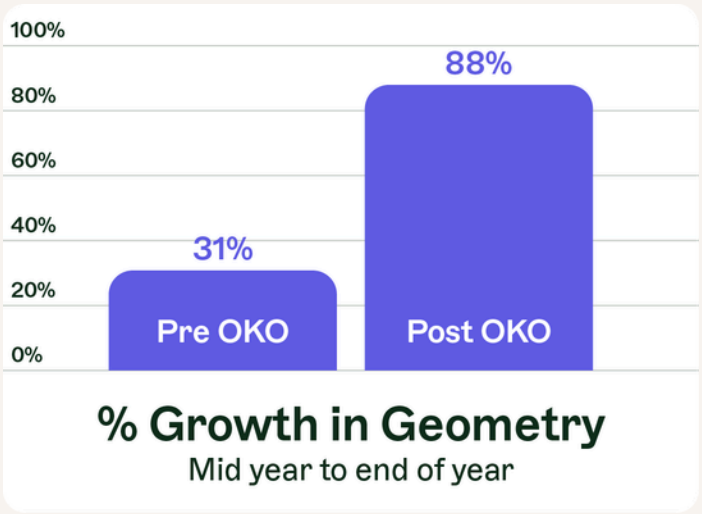
The OKO platform facilitated these discussions by calling on students by name and prompting them to explain their reasoning—**allowing discourse to continue even when the teacher was working with another group.**

Clear Pre–Post Results

The impact of this shift was both immediate and measurable. From the beginning of the year to the middle of the year, geometry growth had been limited to 31%. After implementing OKO during small groups, that number rose dramatically.

As Kelsey summarized in her findings:

> "From the beginning of the year to the middle of the year, there was only 31 percent growth in geometry, but after implementing OKO's AI platform, there was an **87.5 percent growth in geometry.**"



In addition to overall growth rates, students demonstrated meaningful progress against established benchmarks. Typical annual growth in geometry on the i-Ready diagnostic ranges from 20 to 25 points. Following implementation, 62.6% of students met or exceeded typical annual growth expectations, with a significant portion surpassing those benchmarks.

Usage data also pointed to a strong dosage effect. **Seventy-seven percent of students who spent more than 100 minutes on OKO met or exceeded typical annual growth**, and **92% showed measurable growth overall**, reinforcing the importance of consistent discourse opportunities.

Deeper Understanding, Not Just Higher Scores

Beyond test scores, qualitative evidence pointed to deeper learning. Student journal reflections grew longer and more specific, with increased use of geometric vocabulary such as faces, vertices, angles, and sides. Where students once wrote short, vague statements about how they felt about geometry, they began explaining why concepts made sense—or where confusion remained.

Notably, students frequently referenced the AI facilitator—nicknamed "Ms. OKO"—as a support in their learning. This reflected not just engagement, but a growing sense of confidence and willingness to participate in mathematical conversations.

> **"There was an increased use of geometric vocabulary and journal reflections showing deeper conceptual understanding."**
>
> - K. Nesbitt, Math Teacher

Supporting Students With the Greatest Needs

> **"I feel good about geometry because we have a chance to talk about it on OKO and I got to learn new and different shapes."**
>
> - 4th grade student

The approach also proved effective for students requiring intensive support. One student receiving Tier 3 math intervention began the year performing at a first-grade level in math. By the end of the year, that student was performing at a third-grade level, representing a 60-point gain on diagnostic assessments.

This growth reinforced an important takeaway: structured discourse, when paired with intentional instruction, can help close gaps for students who have historically struggled.

Why It Worked

Several factors contributed to the success of the implementation. Students had been introduced to norms for discussion earlier in the year, which prepared them to engage productively without constant teacher facilitation. The AI platform sustained high-quality discourse **while freeing the teacher to focus on targeted instruction elsewhere** in the room. And because OKO **fit seamlessly into existing routines and technology infrastructure**, it did not add instructional burden.

A Model for Broader Impact

For Kindezi, the implications extend beyond a single classroom. Geometry has long been a challenge at the school, network, and national level. This teacher-led study demonstrated that combining small-group instruction with AI-facilitated discourse can accelerate growth in a domain where progress has historically stalled.

Looking ahead, Kindezi teachers are using OKO across additional math domains and to support other teachers in implementing the approach. The findings point to a scalable model—one that strengthens student understanding, supports teacher capacity, and creates space for meaningful mathematical conversation.