IVY TODD, ALICE HUGUET

Accountability and Alignment Strategies for Implementing Edtech

How One School District Narrowed the Gap Between Promise and Practice

This research was sponsored by the Institute of Education Sciences.

Research Report

For more information on this publication, visit **www.rand.org/t/RRA5192-1**

About RAND

RAND is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. To learn more about RAND, visit www.rand.org.

Research Integrity

Our research integrity is grounded in RAND's core values of quality and objectivity. Rigorous quality assurance procedures, conflict of interest screening, and transparency in funding ensure that every study is objective and nonpartisan. Learn more at www.rand.org/integrity.

RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

Published by the RAND Corporation, Santa Monica, Calif.
© 2026 RAND Corporation
RAND® is a registered trademark.

Cover photo: DaniloAndius/Getty Images

Limited Print and Electronic Distribution Rights

This publication and trademark(s) contained herein are protected by law. This representation of RAND intellectual property is provided for noncommercial use only. Unauthorized posting of this publication online is prohibited; linking directly to its webpage on rand.org is encouraged. Permission is required from RAND to reproduce, or reuse in another form, any of its research products for commercial purposes. For information on reprint and reuse permissions, visit www.rand.org/about/publishing/permissions.

RR-A5192-1

About This Report

Educational technology (edtech) products often go underused, falling short of the usage levels recommended to realize the products' promised benefits. In this report, we examine a case in which one large urban school district substantially increased student usage of a supplemental math platform, Zearn Math, over two years. We draw on interviews with teachers and school leaders at six case study schools, along with platform usage data, to describe (1) the district- and school-level accountability and alignment strategies associated with that increase, (2) the trade-offs that accompanied those strategies, and (3) what these strategies and trade-offs might mean for other school systems working to strengthen edtech implementation.

This report is intended for district and school leaders, edtech developers, funders, and researchers concerned with implementing promising edtech products well and at scale. This report is one of several publications from a larger study of Zearn Math, a popular K–8 math-teaching software platform designed to enable all students to access content appropriate for different grade levels. An impact paper (Pane et al., 2025) presents the results of a randomized controlled trial's effects of Zearn Math on student achievement, a cost study (Goughnour and Doss, 2026) analyzes the financial requirements of adopting Zearn Math, and a forthcoming implementation analysis will examine the program's classroom-level use in greater depth.

RAND Education, Employment, and Infrastructure

This work was conducted in RAND Education, Employment, and Infrastructure, a division of RAND that aims to improve educational opportunity, economic prosperity, and civic life for all. For more information, visit www.rand.org/eei or email EEI@rand.org.

Funding

This research was sponsored by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A230170 to RAND. The opinions expressed are those of the authors and do not represent the views of the Institute or the U.S. Department of Education.

Acknowledgments

We are grateful to the teachers, school leaders, and district and Zearn Math staff who generously shared their time and perspectives, without whom this report would not have been possible. We thank our RAND colleagues on the broader Zearn Math study team, including Christopher Doss, John Pane, Miray Tekkumru-Kisa, and others whose work informed this report. We also thank Susannah Faxon-Mills and Susan Bush-Mecenas for their thoughtful reviews, and Monette Velasco and Dan Cabrera for their support in preparing the report for publication. In addition to engaging expert human peer reviewers, the quality assurance team used assistive artificial intelligence tools to suggest writing improvements to the authors. Any errors that remain are our own.

Summary

Over the course of a two-year study, one large urban school district substantially increased students' usage of a supplemental math education technology platform, Zearn Math. In the first year, fewer than one in five students met the platform's annual lesson goal. By the second year, about half did, signaling a notable improvement. In this report, we use two concepts from educational policy literature, accountability and alignment, to examine the district- and school-level strategies associated with this increased usage in year two.

Key Takeaways

To explore how schools implemented Zearn Math, we conducted six school-level case studies. As part of the study, we interviewed teachers and instructional leaders from those schools about their experiences using the program. Through our analysis, we find the following:

- **District- and school-level accountability strategies signaled that Zearn Math was not an optional add-on but part of the district's broader approach to math instruction.** These strategies included setting clearer expectations, centralizing usage monitoring, and offering incentives for individual students, classrooms, and schools.
- **Teachers and leaders credited alignment strategies with making regular use more feasible.** These included improved alignment between Zearn Math and the district's core math curriculum, dedicated time for platform use in school schedules, fewer competing products, and expanded professional learning.
- **These strategies appeared to build on one another.** A spring incentive campaign in year two, for instance, appeared to build on the expectations, scheduled time, and monitoring that were already in place. Interviewees often referred to these shifts in conjunction with one another—more as a package than as independent components.
- **The changes involved trade-offs.** Although many teachers welcomed the added clarity and structure, some described the new expectations in year two as stressful, worried about consequences for not meeting targets, or questioned whether time spent on the platform displaced other valued activities.

Contents

About This Report iii
Summary v

Accountability and Alignment Strategies in Edtech: How One District Narrowed the Gap Between Promise and Practice 1
Study Context 3
Findings: Shifts in Accountability and Alignment Coincided with Usage Gains 5
Discussion and Recommendations 15

APPENDIXES
A. Discussion Guide 19
B. Implementation Details 21
C. Methods 23

References 25

Accountability and Alignment Strategies for Implementing Edtech: How One School District Narrowed the Gap Between Promise and Practice

Educational technology (edtech) products are central in many school districts' strategies for core instruction and addressing pandemic-era learning losses (see, for example, DeArmond et al., 2022; Destler and Hill, 2022). However, school districts often struggle to move from adopting edtech products to ensuring that students use those products consistently and at recommended levels. Students' use of these products (the *dosage*) often falls below the level needed to realize promised gains in student learning (for examples, see Holt, 2024; Escueta et al., 2020; Phillips et al., 2020; Ikemoto, Steele, and Pane, 2016).

But what if a school district could meaningfully narrow the gap between recommended and actual use? In this report, we examine one school district in which student use of an edtech platform increased substantially over two years, drawing lessons for district and school leaders, edtech developers, funders, and researchers interested in improving edtech implementation at scale.

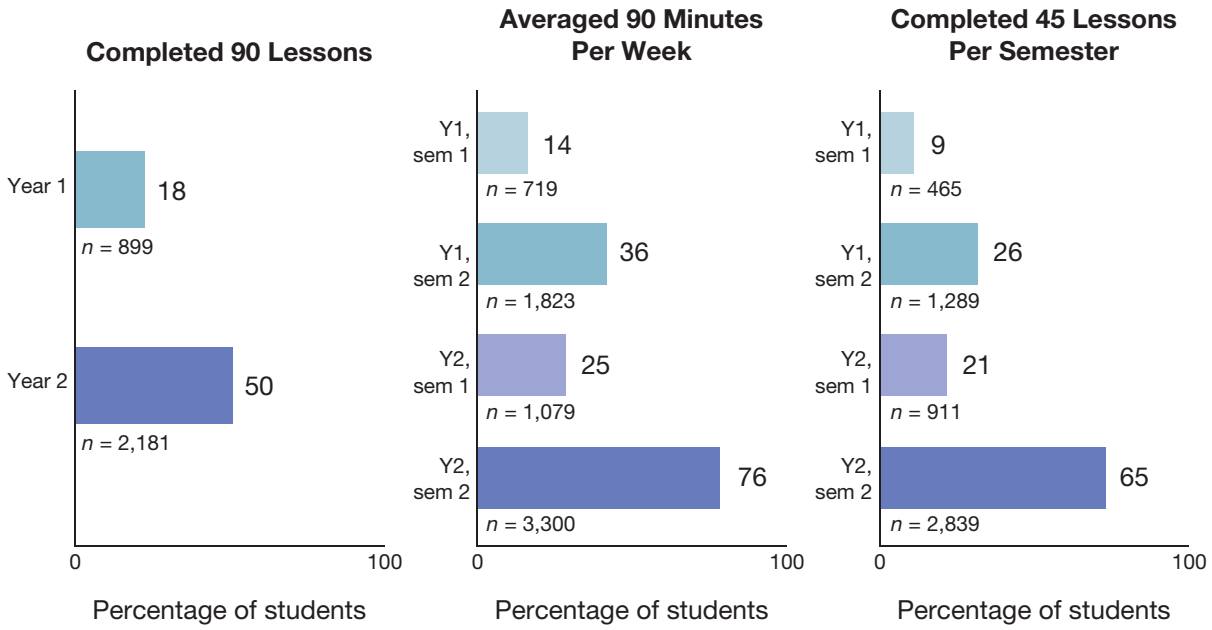
We describe the strategies that the district and its schools used to spur a marked increase in the usage of Zearn Math, an edtech platform, over two years. Our analysis draws on a large randomized controlled trial in which half of the 64 schools in a large, urban school district supplemented mathematics instruction for grades three through five with Zearn Math, and the other half continued business as usual; the primary sample included about 10,500 students (Pane et al., 2025). The qualitative findings we present here are based on a small subset of six treatment schools that participated in that trial.

Within the full treatment group, both grade-level lesson completion and time on the platform increased substantially over the two-year period. As Figure 1 illustrates, while fewer than one in five students met Zearn's annual recommended dosage the first year, approximately half of the participating students met the targets in the second year (Pane et al., 2025).[1] Because there was an increase in usage from the first year, we could use patterns from our qualitative data to examine factors associated with that change. To examine these factors, we asked the following questions:

- How did district and school leaders change the expectations, supports, and routines used to implement Zearn Math between the study's two years?
- How did shifts in district and school strategies reportedly affect teachers' use of and attitudes toward Zearn Math?

[1] Zearn recommends that students complete at least 90 grade-level lessons over the course of the school year—approximately three lessons per week. The 90-minute weekly benchmark reflects Zearn's recommended usage guidance and is used here as an implementation benchmark, not as an independent estimate of the dosage needed for learning.

FIGURE 1
Zearn Math Usage in Years 1 and 2



SOURCE: Features information from Pane et al., 2025.
NOTE: sem = semester; Y1 = Year 1; Y2 = Year 2.

To explore these questions, we drew on Coburn, Hill, and Spillane's (2016) implementation framework, which proposes that classroom-level implementation of instructional policy depends in part on two conditions: (1) accountability systems and (2) alignment between the policy and the surrounding instructional infrastructure, such as the curriculum and the professional learning and assessment systems.[2] In this framework, implementation is more likely to reflect the policy designers' intentions when both accountability and alignment are strong; when both are weak, implementation may be more spotty, inconsistent, or superficial. Empirical work links clear guidance, supportive instructional infrastructure, and aligned resources with stronger instructional implementation while underscoring the importance of local adaptation (Comstock, Edgerton, and Desimone, 2022). This framework helps us examine patterns in district- and school-level strategies that accompanied increased Zearn Math usage. See Box 1 for a summary of the two groups of strategies.

As we describe in this report, the increase in Zearn Math usage was associated with changes in accountability strategies at the district and school levels, particularly in the second semester of year two. At that time, district leaders communicated that Zearn Math was a priority, provided explicit expectations for its use, made lesson-completion data more visible to school leaders, and reinforced progress through recognition and incentives. According to our interviews, these changes reduced ambiguity and signaled that Zearn Math was part of the district's broader math instructional strategy.

[2] We use *alignment* in reference to coordination between a policy and the broader instructional infrastructure (e.g., the curriculum, the professional learning system, schedules), not the pedagogical work of integrating a platform into daily lesson objectives and instructional decisions.

BOX 1

Defining Accountability and Alignment in Educational Policy Implementation

Accountability: The system of incentives, sanctions, and mandates designed to influence changes to practice.

Alignment: "The degree to which standards, assessments, instructional materials, the focus of evaluation schemes, and professional development are coordinated with one another."

SOURCE: Definitions are adapted and reproduced from Coburn, Hill, and Spillane, 2016, p. 246.

The increase in usage in year two was also associated with stronger alignment between Zearn Math and the district's broader instructional infrastructure. District and school leaders prioritized dedicated class time for using Zearn Math, continued the shift to a core math curriculum whose sequence paralleled Zearn Math's, discouraged the use of competing edtech products, and expanded implementation support. Teachers and school leaders said that these changes made Zearn Math use easier to fit into the school day.

Accountability and alignment strategies appeared to complement one another. According to many of our interviewees, clearer expectations and monitoring sent a signal that Zearn Math mattered, and scheduled time, curriculum alignment, fewer competing tools, and implementation support made regular use easier. However, some interviewees reported that the new accountability and alignment strategies in year two contributed to unintended consequences, including teacher stress, opportunity costs, and a perceived loss of flexibility. We also note that dosage may be a necessary but insufficient condition for edtech to deliver on its promise; reaching usage targets is not the same as meaningfully integrating a platform into instructional practice.

See Box 2 for a summary of the two-year study.

Study Context

Before presenting our findings, we offer context on Zearn Math as a platform, the district's shifting policy environment during the study period, the data sources informing this report, and important limitations for interpreting the findings.

About Zearn Math

Zearn Math is a K–8 math platform developed by the nonprofit Zearn. Zearn Math is designed to be used either as a full curriculum or as a supplement to existing math education programs. With Zearn Math, teachers assign digital lessons for students to complete on the platform. Lessons cover math concepts for grades K–8. Each lesson includes fluency games, videos led by on-screen teachers with pause points to solve problems, and a closing mastery-based quiz called a Tower of Power. Students get as many attempts at the Tower of Power as they need to demonstrate mastery with a score of 100 percent, after which they can advance to the next lesson. Because completing a lesson requires mastery, Zearn Math treats lesson completion rather than time on the platform as its primary usage metric. Zearn Math's "acceleration" approach sets students on relevant grade-level learning paths and provides targeted remediation when students struggle; it does not default to personalized, off-grade-level assignments.

BOX 2

Building on Evidence: Insights from a Two-Year Study of Zearn Math

For this report, we draw on data from a larger study: a randomized controlled trial evaluating the effects of Zearn Math on improving math achievement in grades 3 through 5 in one large urban school district during the 2022–2023 and 2023–2024 school years. Sixty-four schools participated; 32 were randomly assigned to implement Zearn Math, and the other 32 were randomly assigned to continue their typical math instruction.

The analysis in this report builds on a separate publication from the same two-year study. The authors found suggestive evidence that Zearn Math had small, positive effects on students' math achievement levels. Students who used Zearn Math showed slightly higher scores on the state math test (the confirmatory outcome), although the results were not statistically significant. Zearn Math also generated statistically significant positive effects on the MAP formative assessment (an exploratory outcome). For more details on outcomes, see Pane et al. (2025).

We also rely on the analysis done by the research team on implementation complexity, including changes in the district's policy. This forthcoming analysis found that, while monitoring and usage increased substantially and uniformly in year two, classroom-level practices around instructional alignment and data use showed less uniform change and varied by teacher.

Zearn recommends that students complete at least 90 grade-level digital lessons over the course of a school year, which translates to three lessons per week. In the second half of year two, monitoring showed that most students were on pace to fall short of the 90-lesson goal. In response, district leaders communicated an updated goal of three to five on-grade-level lessons per week to help students make up ground and reach 90 lessons by the end of the year, which was an adjustment that the district called the Zearn Challenge (we discuss this in more depth later in the report).

Zearn supported implementation through both material resources (e.g., student data reports, lesson plans, and professional learning modules) and advisory supports, including giving access to implementation coaches who provided guidance and training to school leaders and staff. More information about Zearn Math can be found in Appendix B and other reports (e.g., Pane et al., 2025).

A District Leadership Transition Reshaped Priorities and Accountability

Unrelated to this research, the district underwent a major governance and leadership transition before the second year of the study. Existing leadership was replaced, and many staff reported heightened scrutiny and uncertainty about their jobs. Within this environment, the new administration launched a concentrated reform effort with greater oversight in a limited cohort of schools, which we refer to as the *improvement cohort*, and there were plans to expand to additional schools. About one-quarter of the 64 schools in our larger study were part of the improvement cohort during the study period; it was anticipated that other schools would join the following year, and personnel at all schools were aware of the district's increased focus on accountability and evaluation. None of the case study schools featured in this report were part of the improvement cohort.

In year two, the district introduced a set of coordinated changes to encourage Zearn Math usage. Several of these changes were structural and preceded the spring semester. These included clearer, more explicit expectations communicated from the superintendent's office; dedicated time built into schools' master schedules; and centralized data monitoring by the district. In addition, the district launched the Zearn Challenge in the second semester. This was a student-facing incentive campaign focused on helping students reach Zearn's 90-lesson goal by the end of the school year. The Challenge involved completion targets and concrete rewards. It was within this shifting environment, including new leadership and heightened accountability, that the dramatic rise in Zearn Math dosage occurred.

See Box 3 for a summary of the study's data collection, analysis, and limitations.

Findings: Shifts in Accountability and Alignment Coincided with Usage Gains

In Box 4, we summarize key events and activities in the implementation of Zearn Math over the two study years. The box shows the ways that the second year differed from the first, including new district leadership, a curriculum transition, clearer expectations for Zearn Math's implementation, increased monitoring, dedicated schedule time, implementation supports, and incentives for use.

In the findings that follow, we focus on the year two changes that were directly related to Zearn Math's implementation. These changes were not all at the same level or of the same degree of formality: Some were the result of district decisions, some occurred because of the combined support from the district and Zearn, some were school-level routines, and some were local adaptations by school leaders and teachers. The changes also operated across the district, school, and classroom levels. District expectations shaped school routines, and school leaders added their own guidance and incentives. While we use *accountability* and *alignment* as analytic categories for organizing this discussion, in reality, teachers often experienced these efforts as a package. Because several accountability and alignment shifts overlapped during the two-year study, we cannot determine which strategies mattered most. In Box 5, we summarize the strategies further described in the sections that follow.

BOX 3

Data Collection, Analysis, and Limitations

For this report, we draw primarily from 126 interviews that we conducted over two years with teachers, school leaders, and instructional leaders at six case study schools. We conducted 57 interviews in year one and 69 in year two. We also reviewed documentation from Zearn and the district, and we spoke periodically with district and Zearn staff to understand the broader implementation context.

We selected the six case study schools to reflect variation in student demographics, achievement, and early Zearn Math usage. We then compared interview themes across schools and across the study's two years to understand which implementation conditions stayed the same and which changed. We interpreted those themes alongside platform usage data to identify factors that may have helped explain the increase in usage. More-detailed information about our methods and sample can be found in Appendix C.

Limitations

Readers should bear in mind a few caveats about the data underlying this report. First, our case study sample is small; we selected six schools to represent varied experiences, but case studies are not designed to be generalizable. And, of course, the implementation lessons we gleaned from within a single district do not necessarily generalize to all school districts. Second, interview data are self-reported and reflect interviewees' perceptions, which may not fully align with classroom practice or with how other staff experienced the same policies. Third, although we present strategies individually, interviewees often talked about them holistically, and although we distinguish district- and school-level strategies, teachers experienced them as a package; sometimes teachers did not differentiate which directives came from Zearn, the district, or school leaders. We therefore recommend attributing interviewees' accounts to the *combination of strategies* rather than to any single component.

A separate caveat concerns the relationship between the accountability and alignment changes that interviewees described and the usage data. The patterns from our interviews are consistent with the observed increase in Zearn Math usage, but we cannot conclude that the changes *caused* any increase.

BOX 4

Timeline of Key Shifts in Zearn Math's Implementation at the District and School Levels

Before Year 1:

- Schools appoint implementation leaders to coordinate the campus-level Zearn Math implementation.
- Zearn provides initial training sessions for principals, implementation leaders, and teachers.
- Zearn recommends that students complete at least 90 relevant grade-level digital lessons over the course of a school year, which translates to three lessons per week.
- The district maintains multiple edtech product licenses alongside Zearn Math.

Year 1:

- Professional learning opportunities for Zearn Math is primarily provided by Zearn, which trains school-level instructional leaders and teachers.
- Zearn makes implementation coaches available, but their engagement varies by school.
- The district begins transitioning to a new core math curriculum (Eureka Math); this replaces the prior curriculum (HMH Go Math!), which was not explicitly aligned with Zearn Math.
- In partnership with schools, Zearn runs a small-scale Zearn Challenge.
- Year 1 outcome: fewer than 1 in 5 students (18%) meet the 90-lesson goal.

Between Year 1 and Year 2:

- A district leadership transition brings a new administration.
- The new administration launches a concentrated effort with heightened oversight in improvement cohort schools.
- The district continues its shift toward the Eureka Math curriculum that is realigned to a district-defined scope and sequence; Zearn Math digital lessons progress alongside the Eureka Math scope and sequence; teachers receive training.
- The district prioritizes Zearn Math and discourages competing edtech products in treatment schools.

Year 2—first semester:

- The district announces a renewed emphasis on Zearn Math in a meeting for principals.
- The district's instructional coaches begin offering office hours and targeted Zearn Math support.

Year 2—second semester:

- The district launches a larger Zearn Challenge campaign.
- In-person Zearn coaching visits become more frequent.
- Using results from the monitoring of lesson-completion progress, the district communicates updated pacing guidance of three to five on-grade-level lessons per week to help students reach the unchanged 90-lesson annual goal by the year's end.
- School leaders gain access to centralized usage dashboards comparing schools across the district.
- Districtwide communications emphasize Zearn Math expectations.
- The district rolls out tiered incentives for students, classrooms, and schools.
- School leaders layer on local incentives.
- Year 2 outcome: 50% of students complete 90 lessons over the year; 76% of students spend an average of 90 minutes per week using Zearn Math in the spring semester.

BOX 5

Year 2 District and School Changes in the Accountability and Alignment Strategies

Accountability Strategies

District-level changes:

- Clearly and consistently communicated expectations for Zearn Math implementation
- Monitored usage via centralized dashboards
- Provided incentives and rewards for school-level usage

School-level changes:

- Established school-level guidance to help teachers understand what Zearn Math usage should look like
- Implemented school-level accountability systems to help teachers meet Zearn Math usage goals
- Facilitated student- and classroom-level incentives

Alignment Strategies

District-level changes:

- Shifted to Eureka Math's curriculum (realigned to a district scope and sequence), the sequence of which paralleled Zearn Math's curriculum
- Discouraged competing edtech products
- Provided and facilitated professional learning support

School-level changes:

- Established school-level structures to help teachers integrate Zearn Math into daily math instruction
- Built time for Zearn Math use into schoolwide schedules
- Connected teachers with professional learning opportunities

Accountability Strategies, Such as Setting Clearer Expectations, Monitoring Usage, and Providing Incentives, Helped Make Zearn Math a Priority but Added Pressure

Implementation scholars suggest that accountability mechanisms, including clear expectations, monitoring, incentives, and sanctions, can be valuable levers for shifting instructional practice (Coburn, Hill, and Spillane, 2016). Our findings are broadly consistent with this conclusion. In year one, when district- and school-level accountability for Zearn Math was limited, its use varied across schools and classrooms and ultimately fell short of the designers' recommendation. In year two, clearer expectations, centralized monitoring, and student- and school-level incentives were associated with more consistent use. And in the spring semester of year two, several of these strategies came together through the Zearn Challenge. Teachers and school leaders tended to group these accountability strategies together, and the strategies appeared to reinforce one another. Clear expectations gave teachers and students a dosage target to aim for, monitoring made progress toward that target clearer, and incentives provided recognition for reaching it.

Many teachers said that these changes prompted them to try new classroom routines, shifted their attention from students' time on the platform to lesson completion, and generated student enthusiasm. At the same time, some teachers described the increased accountability as rigid or stressful and worried about losing the flexibility to tailor their instruction. These are trade-offs that leaders will want to consider in decisionmaking.

Accountability Strategy 1: Setting Clear, Consistently Communicated Expectations

District-Level Changes

In the first year of the study, some school-level interviewees expressed uncertainty about how the district wanted them to use Zearn Math.[3] Interviewees at case study schools, including teachers and school leaders, varied in how they interpreted the district's expectations; many understood themselves to be "piloting," while others viewed the expectations as outcomes that the district recommended but not necessarily required. One principal explained that, in year one, "The sense of urgency was never present. If there was more of a sense of urgency [from the district], I think we would have done it [met the expectations] more with fidelity."

In year two, the district communicated implementation expectations more explicitly than it had in year one. During the first semester, district messaging emphasized Zearn's annual 90-lesson benchmark. After reviewing first-semester lesson-completion data and seeing that many students were not on pace to reach that benchmark, district leaders shared accelerated spring pacing guidance; students would now complete three to five on-grade-level lessons per week. Their goal was to help students catch up to the 90-lesson benchmark by the end of the year.[4] District leaders first shared the new expectations in a principals' meeting and continually emphasized the expectations during the spring in the superintendent's newsletters and other districtwide communications.

School-Level Changes

According to our interviewees, school leaders reinforced the district's shift in year two. They communicated to teachers that using Zearn Math was required rather than encouraged, and leaders passed along the updated pacing guidance of three to five lessons per week to help students reach the 90-lesson goal.

We heard that school leaders' messaging about the district's expectations began to specify more explicitly when, how, how often, and why students should use Zearn Math, and this messaging reached both teachers and students. Interviewees described some school-by-school variation in the guidance's specificity; for instance, some leaders directed teachers on which specific lessons students should complete, while other leaders set a weekly lesson count but left assignment decisions up to teachers.

Reported Response to These Changes

The district's renewed communication about expectations for Zearn Math in year two led school leaders to prioritize its implementation more than they had before. During the study's first year, we found that only one of the six case study schools treated Zearn Math as a requirement, while others framed it as either encouraged or optional. In year two, one principal explained their response to the new district communications, saying, "We have been a little bit lax about how much time we've been using on Zearn, so [when] the communication came from the superintendent that said, 'Now we need to get five lessons a week in order to try to get those 90 lessons [this year],' we had to kick it."

Teachers said that their leaders' emphasis on Zearn Math usage pushed them to build routines for regular lesson completion, and many teachers responded positively to the added clarity. In the second semester of year two, one teacher said,

> It was only three lessons last year [and the] first semester . . . . But now they're making a big deal about it. And I can feel and I can see the difference, having [students] practicing right there, trying to solve it, trying to understand it. I like it. I like it this way and I hope that we have the time to keep it this way next year.

Other interviewees often shared this appreciation for clearer expectations.

---

[3] A future publication will provide a detailed comparison of year one's implementation indicators across schools.

[4] A future publication will discuss in further detail the shift from loose or varied expectations in year one to uniform expectations in year two.

However, a smaller group of interviewed teachers noted that the expectations were overly rigid, especially when they felt that they were unable to make lesson-assignment decisions for individual students out of fear of violating the "rules." Some teachers explained that the focus on compliance with dosage targets and lesson sequences left little room for their own professional judgment, creating a tension between meeting mandated targets and tailoring assignments to individual students' needs. This tension appeared to vary by school. Teachers in schools in which leaders provided stricter guidance about which lessons to assign appeared more likely to report this concern than teachers in schools in which leaders set usage targets but left assignment decisions to teachers. Even amid these concerns, usage rose markedly in the second semester of year two, corresponding with the increased clarity and consistency of communication from district and school leaders.

Accountability Strategy 2: Increasing the Monitoring of Usage

District-Level Changes

In the second semester of year two, the district ran targeted completion Challenges that focused on helping students reach the 90-lesson goal by the end of the school year. These Challenges paired clear lesson-completion targets with regular monitoring of Zearn Math usage data and incentives, which we discuss in the next section. Before this time, school leaders could view how their school's rates compared with those of other campuses in the Zearn Math dashboard; what changed in the second semester was that district monitoring became more visible, and school staff noted that monitoring felt more consequential. The superintendent's newsletters and other districtwide communications reinforced this by highlighting schools with strong usage. The school leaders we spoke with understood that the district was actively reviewing their usage data and paying attention to school-level comparisons, whereas in year one, leaders had been unsure whether anyone was paying attention.

School-Level Changes

School leaders also took steps to monitor classroom-level usage and hold teachers accountable for meeting lesson-completion goals. School staff described different monitoring routines: Some leaders sent progress updates in emails and newsletters, while others discussed Zearn Math during staff planning meetings or followed up with individual teachers whose classes were not meeting targets. Teachers said that their leaders offered encouragement, suggestions, or reminders in response to student- and classroom-level usage data.

Reported Response to These Changes

School leaders reported that the dashboard and district communications about monitoring led them to believe that the district was taking Zearn Math's usage seriously, tracking schools' compliance with expectations. Although school leaders did not report experiencing sanctions for insufficient usage, they were mindful that consequences might follow. One leader explained, "I feel like nobody wants to be on the blacklist and get called out. So, if this is a new expectation, you got to do it." School leaders reported that this implication of monitoring (i.e., getting called out) motivated them to increase their emphasis on classroom-level implementation.

Interviewed teachers often reported that the increased monitoring and accountability helped motivate them and their students to use Zearn Math more consistently. It also shifted their focus from logging time to completing lessons. Because each lesson ends with what Zearn calls the Tower of Power (a mastery-based quiz that students must pass with 100-percent accuracy to advance to the next lesson), students need to master grade-level content before progressing, and many teachers found that tracking completions was more meaningful than tracking time on the platform. One teacher explained,

> Before, it was like [leaders] would measure how many minutes the students spent on the program if you weren't making the minutes. But the minutes [tracking] doesn't measure anything. [Students] could be stuck. I could sit at my desk and be doing my own thing while they just have the program open.

The shift toward tracking lesson completion also played a role in how teachers approached students who were working on Zearn Math lessons below their grade levels. The district's focus reflected Zearn's approach to acceleration, which is intended to keep students working on grade-level content while providing scaffolding for struggling students. Because only on-grade-level lessons counted toward classroom progress, some teachers stopped reassigning earlier-grade content, even when their instinct was to do so. One teacher described this shift as follows:

> So a lot of my kids were completing their minimum lessons. But . . . because I sent them back to lessons that they had already completed, it didn't count towards our average; they weren't able to be rewarded for completing the lessons. So I have stopped doing that.

Some of the teachers who prioritized on-grade-level lessons noted that they were pleasantly surprised by what followed; they said they were particularly impressed by students who they had not expected to succeed with grade-level content. One teacher described how her thinking changed related to giving struggling students grade-level work: "Some of [the students] are really, really low, low, low. But when they get to that Zearn [Math], for some reason, they understand compared to maybe when we are teaching in class." Other teachers remained skeptical that grade-level content was the right fit for their students, and some teachers continued to use Zearn Math primarily as an intervention.

Beyond questions about grade-level content, a minority of staff whom we interviewed across several schools expressed broader concerns about pressure from the spring Zearn Challenge and the associated accountability strategies. Some interviewees said that they were unsure what consequences their schools or their leaders might face for not meeting targets, and that uncertainty itself worried them. Some teachers and instructional leaders described the combination of the Zearn Challenge and other district policy changes as "stressful" or "overwhelming," and the teachers worried about consequences for noncompliance.

Accountability Strategy 3: Providing Incentives and Rewards for Implementation

District-Level Changes

Through the Zearn Challenge, the district facilitated a Zearn-supported incentive campaign to encourage students to meet lesson targets. The campaign offered incentives at the student, classroom, and school levels. Students could earn small weekly prizes (e.g., stickers, pencils, erasers, snacks) for meeting lesson-completion goals. A classroom that consistently met usage goals over a four-week period could receive a pizza party. Schools that the district identified as performing highly in the Challenge received recognition through newsletter shout-outs, trophies, and other celebrations.

District-level interviewees reported that Zearn funded many of the material prizes and pizza parties used as incentives. School-level interviewees, however, generally experienced the Challenge as a joint effort between the district and Zearn because district leaders promoted the campaign, monitored progress, and publicly recognized schools' participation.

School-Level Changes

School leaders operationalized the Zearn Challenge reward structure on their campuses, coordinating logistics and making the Challenge visible in school routines. Many leaders at case study schools added local incentives or adapted the Challenge to fit their existing school practices. For example, some leaders awarded existing school-reward points, such as school "bucks" for Zearn Math progress; added Zearn Math–focused shout-outs to morning or lunchtime announcements; created Zearn Math–focused bulletin boards and celebratory displays in hallways and shared spaces; or recognized individual students as a "Zearn student of the month."

Reported Response to These Changes

Teachers and school leaders reported that the incentives sparked student enthusiasm for Zearn Math, which some teachers said helped them meet dosage targets. The teachers described a variety of perceived benefits, including easier classroom management and improved student morale. Teachers and leaders said that student enthusiasm made managing the classroom during "technology time" a smoother process. Some teachers said that they did not need to corral students to stay on task; instead, their students were eager to complete lessons for the chance to earn rewards.

Many teachers and leaders reported that excitement around Zearn Math contributed to positive school and classroom culture. A teacher in year two shared,

> I feel like the student motivation and the classroom management [improved]. I would not consider myself a strong math teacher. And my kids are very engaged and they are very open to [it]; they want to do math lessons. That is, they get excited about it and I'm like, "All right, let's do it." So I would say that [student motivation] would be a big thing.

Interviewees said that students were eager to receive recognition for their progress. Some teachers shared that the Challenge created a sense of camaraderie and teamwork among students eager to earn shared rewards. One teacher said, "[The students] want to see their classroom on the top, so they even work collaboratively." Teachers reported developing peer-support routines in which students explained math concepts to each other to help their classmates who were struggling with Zearn Math lessons.

Teachers also often said that enthusiasm for Zearn Math translated into wider benefits for math learning. Teachers reported that students made connections between concepts they learned in Zearn Math and in whole-class math instruction; as one teacher reported, "[Students are] able to make the connections between [Zearn] and whatever I'm teaching. Sometimes they'll just scream out, 'Oh, I've seen that on Zearn! I know how to do that!' So they'll make that connection."

Several teachers described student-facing rewards as one reason they became more willing to prioritize using Zearn Math. Even teachers who had been reluctant to use the platform said that they wanted their students to have a chance to earn prizes. Some of these teachers reported being pleasantly surprised with the platform and its impacts on student learning once their students began using it and completing lessons in earnest.

Accountability Strategies Signaled That Zearn Math Was Expected

In interviews, teachers and school leaders tended to group these accountability strategies together, and the strategies appeared to reinforce one another. Clear expectations gave teachers and students a dosage target to aim for, monitoring made progress toward that target clearer, and incentives provided recognition for reaching it. Interviewees rarely credited any single component for their shift in practice; instead, they described a broader change in which Zearn Math moved from an optional activity to a requirement. Interviewees' responses to the Challenge varied. We heard from many teachers who supported the Challenge and thought it benefitted their students. A smaller group of teachers described the Challenge less as a tool for supporting math learning and more as a compliance activity.

Alignment Strategies Reportedly Eased Daily Zearn Math Use

In this section, we describe the ways that the district and schools better aligned Zearn Math and their instructional infrastructure and how participants responded. In year one, teachers wanted to use Zearn Math but faced obstacles; the platform did not align well with teachers' primary math curriculum, competing edtech products complicated expectations, and Zearn Math use was often squeezed into spare moments. In year two, the district continued its shift to a new mathematics curriculum, the sequence of which was parallel to

Zearn Math. The district also discouraged the use of competing edtech products, built dedicated time for Zearn Math into school schedules, and expanded professional learning opportunities. These alignment strategies were responses to frictions that teachers had named in year one.

Teachers reported that these changes made Zearn Math easier to integrate into their daily instruction and, in some cases, strengthened their overall math teaching. However, some teachers raised concerns when Zearn Math time replaced electives or other valued practices, underscoring that—as with the accountability strategies described above—alignment decisions involve trade-offs.

Alignment Strategy 1: Dedicating Zearn Math Time in School Schedules

District-Level Changes

The district required that schools in the improvement cohort build a block of dedicated Zearn Math time into their schedules.[5] This mandate did not extend to our case study schools, but the leaders of the case study schools still took cues from the requirement, and they pointed to the cohort's change as both a permission to rework their own schedules for Zearn Math and a concrete model for how to do so. Some case study school leaders blocked off 20 to 30 minutes of time for Zearn Math in their schools' daily schedules.

School-Level Changes

During year one, teachers in case study schools reported using Zearn Math during spare moments—as an activity for students who finished their classwork early or as a station-rotation activity while the teacher worked with small groups of students. Zearn Math use was often cut for time. In the second semester of year two, all case study school leaders adjusted their schools' bell schedules and provided teachers with specific guidance on when Zearn Math should be used during the school day.

School leaders established schoolwide policies to accommodate Zearn Math usage, although these policies varied. Some schools set aside schoolwide time every morning, while others scheduled time as part of a standing math lesson block. Several schools added extra time from elsewhere in the schedule, such as during out-of-school-time programming (e.g., before-school or afterschool programs, Saturday school). A few campuses dedicated their elective time to Zearn Math use.

Reported Response to These Changes

Many teachers reported that the explicit allocation of time in the schedule contributed to their increased use of Zearn Math. The allocation changed Zearn Math use from an activity the teachers would like to do into an activity they were actually doing. One teacher told us, "They [students] do 30 minutes in the morning [of] Zearn uninterrupted. Nobody's bothering them; [it's] straight 30 minutes [of] Zearn."

Scheduled time for Zearn Math may also have improved the quality of its use, according to some interviewees. Allocating time instead of using Zearn Math ad hoc meant that students consistently had sustained periods in which they could focus on Zearn Math, giving them enough time to progress in the program. In year two, one school's implementation leader shared the following:

> In the previous years, it's been hit or miss. So teachers might use [Zearn Math] for five minutes, ten minutes, and [students would not have time to] pass any lessons. Now they're actually getting 30 minutes every day, so they're really getting the time to pass lessons.

Many teachers also established routines in which their whole class used Zearn Math at the same time. This enabled teachers to monitor students, provide support as necessary, and make sure that the students stayed on task.

[5] As noted earlier, the improvement cohort was a group of schools that district leadership selected for a concentrated reform effort with heightened oversight. None of our case study schools were part of the improvement cohort.

Although many teachers noted seeing this change as beneficial overall, a minority of teachers across a few case study schools questioned whether their schools allocated *too much* time to Zearn Math, especially when their schools replaced electives with Zearn Math time. Teachers at these schools raised concerns about having to cut other valued practices to accommodate the mandate.

Alignment Strategy 2: Making a Better Fit with the District's Curriculum and Edtech Landscape

District-Level Changes

Over the two-year study period, the district moved to a new core math curriculum: a modified version of Eureka Math that was realigned to a district-defined scope and sequence and adapted to fit the district's schedule. Although this shift was not necessarily made to ease Zearn Math's implementation, it improved the fit between the platform and teachers' core materials because Zearn Math's digital lessons were designed to follow the Eureka Math sequence.

During the first year of the study, the district maintained access to several math edtech products, which some teachers and leaders said contributed to confusion about expectations for edtech use. Teachers indicated that there were as many as 16 different edtech products being used in the study's first year. During the study's second year, the district communicated Zearn Math's priority status and discouraged the use of competing products during designated Zearn Math time. Schools could still purchase supplementary edtech products with their own funds, although this practice was discouraged in treatment schools.

School-Level Changes

During the study's first year, some school leaders explained that the program did not align well with the district's primary math curriculum and that teachers continued to have access to other edtech products. At that time, some school leaders explicitly recommended that teachers use *other* edtech products in addition to or instead of Zearn Math. This changed in year two, when school leaders followed the district's lead, reframing Zearn Math as required and discouraging the use of other edtech products.

Reported Response to These Changes

Teachers shared that the lack of alignment between the sequence in Zearn Math and their math curriculum in year one could make implementation challenging. In year two, case study teachers reported that the parallel sequence between Zearn Math and the modified Eureka curriculum facilitated use. The alignment had an added benefit: Some case study teachers reported that Zearn Math helped them better implement Eureka Math and vice versa. In year two, a teacher explained,

> I'm thankful that we have Zearn [Math] because it is that extra help. If the Eureka lesson didn't get through, [students are] seeing other examples, they're seeing the little reteach videos. I think it's been great supporting the needs, especially for the students who might not have gotten it the first time around in the whole group.

These shifts in the math curriculum and the district's edtech portfolio appeared to reduce friction between Zearn Math use and the broader instructional environment. However, the extent to which teachers synchronized specific Zearn Math lessons with their daily instruction appeared largely left to their discretion and varied across classrooms.

Alignment Strategy 3: Providing Zearn Math Training and Implementation Support

District-Level Changes

In year one, Zearn staff primarily led the professional learning opportunities for Zearn Math's implementation. Zearn staff used a train-the-trainer model with school instructional leaders. In year two, Zearn scaled

back its formal training, providing only a brief session at the start of the year, while the district took on a larger role in supporting implementation. These supports functioned as an alignment strategy because they helped schools clarify how Zearn Math was expected to fit with the curriculum, schedules, classroom routines, and data use. District instructional coaches introduced office hours and other targeted supports to help schools improve their use of the platform. In parallel, Zearn implementation coaches continued to provide product-specific support, which could include guidance on reports, assignments, and classroom routines. Both types of coaches were available to teachers and school leaders.

School-Level Changes

School leaders reported more actively supporting implementation in year two than in year one. School leaders developed clearer guidance on when and how teachers should use Zearn Math, what effective classroom routines during Zearn Math time should look like, how teachers could monitor and support students' progress, and how to use platform data to inform instruction. There was some variation in how school leaders approached the implementation and which role took the lead; some principals took an active role in the process themselves, while others delegated implementation to assistant principals or instructional leaders.

School leaders also reported taking greater advantage of the training and support opportunities that Zearn offered in year two than in year one. Although schools had access to a Zearn implementation coach during both years of the study, interviewees reported more-frequent coaching visits and interactions during the study's second year.

Reported Response to These Changes

School leaders and teachers noted that the district's implementation support in year two reinforced the perception that Zearn Math was an instructional priority. Teachers reported that, as they began using the platform more regularly, they benefitted from professional learning opportunities and advice-sharing. Teachers appreciated tips on how to manage their classes during Zearn Math time and how to use its data reports to support student learning. They also appreciated the less formal, question-and-answer format that Zearn coaches used during their visits. A teacher in year two stated the following:

> The Zearn [coach], she would come in probably twice a month and just show us different things with the teacher-facing slides, the different reports, and how to do [lesson] assignments . . . . They really deep dive and [the coach] did it with us. That's how I received training. I like to be hands-on and not for somebody to show me a PowerPoint. She actually does it with us.

Although the majority of interviewed teachers said that they appreciated the year two professional supports, a smaller proportion said that they wished they had even more training, especially earlier in the implementation period. In year two, one teacher said,

> I wish we would've had more [professional development opportunities] since the beginning of the school year . . . . I feel like that would've helped me use the reports more and probably would've been way more beneficial to my kids if I was actually using [the reports] in the way they were made.

Even with these expanded supports, our interviewees suggested that deeper instructional uses of Zearn Math—and, in particular, the data reports—remained limited for many teachers. Many teachers used the platform's data primarily to monitor lesson completion rates, and they might not have developed the skills or knowledge required to really integrate these reports into their planning.

Discussion and Recommendations

This case illustrates how accountability and alignment can support edtech implementation. Our data suggest that clearer expectations, monitoring, and incentives signaled that Zearn Math was a priority. Better-aligned curriculum, dedicated time in the schedule, fewer competing products, and opportunities for training and support appeared to make regular use more feasible. Interviewees rarely described any one of these strategies as sufficient on its own; instead, formal decisions at the district level, school-level routines, and teacher decisions interacted in ways that were often reported to support the platform's use.

The case also illustrates important trade-offs. The same strategies that clarified expectations could create pressure for some teachers and school leaders. Some teachers expressed that the expectations limited their ability to adapt Zearn Math to students' needs, and others worried that time devoted to the platform displaced other valuable instruction or activities. Their concerns suggest that leaders should attend not only to whether accountability and alignment strategies increase use, but also to how teachers experience those strategies.

Finally, increased edtech usage does not automatically suggest perfect implementation. Additional research from this study finds that teachers' classroom practices around Zearn Math changed less dramatically than dosage did in year two. For instance, a forthcoming article from this study shows that teachers varied in how closely they connected Zearn Math lessons to their classroom instruction. In other words, in addition to dosage, system and school leaders will also want to attend to how teachers use edtech in their instructional decisions.

Recommendations for District and School Leaders

The recommendations below are intended to help system and school leaders strengthen edtech implementation while balancing the kinds of trade-offs we observed in this study. For leaders interested in deeper reflection, Appendix A provides a discussion guide with study-based questions designed to support team conversations.

For District Leaders

Accountability considerations are as follows:

- **Clearly and consistently communicate expectations for edtech implementation.** Specify which product should be used, who should use it, when it should be used, and what usage goals schools are expected to meet.
- **Monitor progress toward edtech implementation goals** using both quantitative data (e.g., the number of lessons completed) and qualitative feedback (e.g., results from teacher surveys or school leader check-ins). In our study, teachers' responses to accountability structures varied: Some found intensive monitoring motivating while others experienced it as surveillance.
- **Consider using incentives at the school, classroom, and student levels to build buy-in.** Teachers reported that student-level incentives made a notable difference in how students engaged with Zearn Math, and some initially reluctant teachers were also motivated by incentive opportunities for their students.
- **Preserve space for school- and classroom-level decisionmaking within implementation guidance.** For example, specify measurable goals for usage but allow schools to set their own schedules, and give teachers the flexibility to adapt pacing or content to students' needs. Teachers at some schools reported that overly rigid expectations limited their professional judgment.

Alignment considerations are as follows:

- **Evaluate whether edtech products fit with the primary curriculum** so that time on the platform supports your overall learning objectives.
- **If one platform is the priority, assess whether competing edtech products might dilute focus.** Teachers reported a greater clarity about expectations in year two when the district lessened access to other products, although this was one of several simultaneous changes.
- **Plan professional learning that specifically supports a platform's or product's implementation.** Teachers in our study appreciated practical, hands-on support (e.g., guidance on using data reports and managing classroom routines during edtech use time).
- **Be mindful and transparent about trade-offs when edtech requires significant daily instructional time.** Some of the teachers we interviewed for this report questioned whether time devoted to using the platform was worthwhile, particularly when it replaced valued practices, such as electives. Engaging school leaders in transparent discussions about these trade-offs may help surface concerns before the trade-offs undermine buy-in.
- **Plan for deeper implementation.** Structural adjustments—aligned curriculum, time allocation, and reduced product competition—can create the right conditions for edtech usage but do not necessarily lead to changes in teachers' practices. Consider supports that could help teachers connect platform data to instructional decisions, and align edtech content with learning objectives, not just dosage targets.

For School Leaders

Accountability considerations are as follows:

- **Focus expectations for edtech usage on student learning, not compliance.** For example, instead of emphasizing the number of minutes to spend on a platform, focus on students' mastery of the content.
- **Consider using incentives for teachers and students.** Incentives could take the form of material (e.g., stickers, pencils, snacks, other prizes) and nonmaterial rewards, such as praise or shout-outs to teachers and students in announcements, newsletters, or bulletin boards.
- **Communicate clear expectations.** Help teachers understand *specific* expectations for edtech implementation, such as which product to use, as well as when, how, how often, and why teachers should use the product.

Alignment considerations are as follows:

- **Ensure that edtech expectations align with other teacher guidance to avoid contradictory messages about priorities.** Teachers in our study reported a greater focus on Zearn Math in year two when school leaders clarified that it was the priority math platform rather than one option among several competing tools.
- **Explore options for allocating dedicated time for edtech use in the school schedule.** Teachers said that moving from sporadic, spare-moment use to designated time blocks helped them meet usage goals, although some teachers raised concerns about edtech time replacing other valued practices.
- **Explicitly connect edtech with the school's instructional vision** to help teachers understand how the edtech product supports students' learning goals. Teachers reported that aligning Zearn Math and the newly adopted math curriculum in year two made it easier to integrate the platform rather than treat it as an isolated add-on.

- **Provide guidance specific enough that teachers understand expectations, but preserve space for teachers to adapt implementation to their students' needs.** Some teachers reported that rigid expectations (e.g., strict adherence to lesson sequences) limited their ability to exercise professional judgment, particularly when students needed different pacing or content.
- **Provide or facilitate access to professional learning focused on practical edtech implementation strategies.** Teachers valued hands-on support, such as coaching visits, which demonstrated how to manage classroom routines or use data reports.
- **Support instructional use of the platform.** Consider how to help teachers use platform data to inform their teaching, such as by creating opportunities for teachers to review student data together or asking them to share strategies for connecting platform content to their lesson objectives.

In this report, we have documented the story of a district in which edtech dosage increased substantially over two years. The combination of clear accountability structures and improved instructional alignment accompanied notable dosage increases in the second year of implementation, though not without trade-offs. This case demonstrates that districts can make meaningful progress on the persistent challenge of moving from edtech adoption to consistent use.

APPENDIX A

Discussion Guide

Implementing edtech well can be difficult, particularly at scale. Even when districts adopt promising products, leaders must make many additional decisions about how a product fits with existing instructional goals, schedules, curricula, professional learning, and accountability systems. Implementation scholarship posits that successful implementation depends not only on setting expectations but also on coordinating supports and helping schools adapt policies to their local contexts (Coburn, Hill, and Spillane, 2016). District and school leaders play an important role in making those decisions clear and feasible for teachers.

Leaders can use the questions below to facilitate team discussions, assess existing practices, or plan next steps. The best time for a leader to use this guide is when they have identified an edtech product (or products) that they are interested in implementing and are planning how best to do so. However, the questions may help at any point in edtech decisionmaking. Our goal is not to advocate for one approach; instead, we hope to help districts and schools find a balance between alignment, accountability, and flexibility so that edtech can support teaching and learning—not constrain it.

For District Leaders

Clarifying the Role of Edtech in Your Instructional Strategy

- How does this edtech product fit within your district's broader instructional goals?
- Can you clearly explain to school leaders and teachers why this product matters and how it supports student learning? How can you encourage school leaders to communicate about this to their staff?
- Are there competing initiatives or tools that might dilute focus or create confusion about this product?

Considering Alignment with Instructional Infrastructure

- To what extent does the edtech product align with your core curriculum, standards, and assessments? Are there ways in which you could increase that alignment?
- How are professional learning opportunities helping teachers integrate edtech into daily instruction rather than treating it as an add-on?
- How should schools allocate time toward your edtech goals? Do you plan to remove redundant or conflicting programs so teachers can focus on implementing your priority product? Why or why not?

Reflecting on Clarity in Accountability Systems

- How are expectations for edtech use, and use of this product, communicated across the system? Are the expectations clear and consistent?
- What signals—via professional learning, communications, or evaluation systems—are you sending about the importance of the edtech product?
- How can you monitor progress in ways that feel supportive, not punitive?
- What kinds of incentives (recognition, celebrations, small rewards) could you offer to build enthusiasm among educators and students?

Balancing Structure and Flexibility

- Are your policies specific enough to guide action but flexible enough to allow for school- and classroom-level decisionmaking?
- How can you create space for schools to adapt implementation to their own contexts while also coordinating across the district?

For School Leaders

Translating System Priorities into Daily Practice

- To what extent do teachers at your school understand what is expected for edtech use—when, how, and how much to use it? How do you know?
- How are you helping teachers connect the suggested edtech to their broader instructional goals?
- Is there time in the school schedule dedicated to edtech use? Why or why not?

Creating Accountability That Supports Learning

- How are you tracking and discussing edtech use with teachers and students?
- Are you monitoring routines that support meaningful engagement (e.g., digging into how students are learning) or prioritizing metrics (e.g., number of minutes logged)?
- How do you celebrate progress and recognize effort?

Supporting Teachers Through Implementation

- What professional learning or coaching opportunities could help teachers at your school use the product and interpret student data effectively?
- To what extent are teachers sharing strategies and troubleshooting challenges together? Are there ways you can encourage this?
- To what extent do expectations for the product's use align with other instructional priorities?

Reflecting on Balance

- To what extent do your existing accountability structures motivate teachers rather than generate stress? How do you know?
- How do you maintain a focus on learning goals while preserving teacher autonomy?

Consider these questions to be a starting point rather than a checklist. The balance between accountability, alignment, and flexibility will likely shift as implementation unfolds, so we encourage leaders to revisit these questions over time, involve teachers as partners in the discussion, and treat edtech implementation as an ongoing process of learning and adjustment.

APPENDIX B

Implementation Details

Zearn Math is a platform for K–8 math learning developed and distributed by the nonprofit Zearn. It can be used as a full curriculum or as a supplement to an existing curriculum. The software comprises full digital lessons, which follow the scope and sequence of Eureka Math's curriculum. Each lesson consists of a fluency exercise, a lesson video with guided practice (Math Chat), and an end-of-lesson quiz (Tower of Power).

Zearn Math uses what Zearn calls an *acceleration approach*, which includes two main design features. First, students' default learning path is set to relevant grade-level lesson sequences; this approach differs from other software programs that are more focused on personalization, which assign students lessons based on the students' prior knowledge, agnostic of their grade level. Second, Zearn Math provides instruction on topics from prior grade levels only when students struggle. If students get questions wrong as they work through lessons, the software offers targeted scaffolding and remediation ("Boosts"). Boosts may address material from previous grade levels but only in service of mastering the existing lesson's topic.

At the outset of the study, schools appointed implementation leaders to coordinate and spearhead Zearn Math's implementation at the campus level. These leaders often had an instructional leadership role within the schools, either as a math coach or as an assistant principal. Schools varied in how they divided responsibilities between the principal and implementation leader, but these leaders played a key role in supporting classroom-level implementation.

In the study, teachers were asked to use Zearn Math as a supplement to their core instruction. The recommended usage target was at least 90 grade-level digital lessons over the course of a school year, which translates to three lessons per week. In the second half of year two and after monitoring lesson-completion progress in the first half of the year, district leaders communicated updated pacing guidance of three to five on-grade-level lessons per week to help students reach the unchanged 90-lesson annual goal by the school year's end. Zearn's implementation support encouraged teachers to integrate Zearn Math with live instruction by syncing students' in-platform lesson assignments with live instruction at the unit level. Zearn also encouraged teachers to draw on platform data to support students' math learning—for example, using Zearn Math–generated reports to identify topics for which students need additional review.

Zearn provided professional learning and implementation support to schools in the study throughout the two-year study period. At the outset of the study (summer and fall of year one), Zearn facilitated respective training sessions for school principals, implementation leaders, and teachers. School-appointed implementation leaders received full-day trainings; trainings for teachers and school leaders were more abbreviated. See Pane et al. (2025) for more information about the provision of training.

Study schools also had access to an implementation coach, employed by Zearn, throughout the implementation period. Implementation coaching could be flexible, depending on the interests of principals, teachers, and others at each school. In general, the Zearn coach attempted to meet with school-based implementation leads on a biweekly basis to check in on usage and offer advice or troubleshooting support as needed. Across our six case study schools, for instance, there was variation in the extent to which schools engaged with coaching supports. Some schools invited the coach to provide additional trainings to teachers; in other schools, the Zearn coach interacted with the implementation lead only.

Zearn's platform includes resources for teachers and administrators to support Zearn Math's implementation. These resources include student data and reports, optional curricular materials, and lesson plans. They also include professional learning resources, such as *mission overviews*, which are instructional modules for teachers to help them prepare to teach upcoming units; professional learning community activities; and technical support modules. Through training, coaching, and platform resources, Zearn provided guidance and advice on ways that school leaders could support Zearn Math's implementation by establishing school and classroom structures, such as data-monitoring routines and celebration rituals. Detailed context about the study district, participating schools, and the broader implementation environment will be discussed in a future manuscript.

APPENDIX C

Methods

For this report, we draw on data collected as part of a larger Institute of Education Sciences–funded efficacy study of Zearn Math. For comprehensive details about the study design, sampling strategy, data-collection procedures, and analytic approach, see Pane et al. (2025).

To explore how schools implemented Zearn Math, we conducted a two-year case study of six treatment group campuses in a school district that was piloting the use of Zearn Math. We interviewed teachers and instructional leaders from those schools about their experiences using Zearn Math. We intentionally selected the six sites to represent diversity across different dimensions, including early Zearn Math usage, baseline achievement, and school demographic characteristics. We were able to visit five of the six case study schools in both years of the study. One of the sites we visited in year one became an improvement cohort school in year two, so the district requested that we visit a different school in year two instead.

Interviews

In our interviews with teachers, we asked about the teachers' typical math instruction, planning processes, data-use practices, professional learning opportunities, and instructional materials and their purposes. We also asked specifically about Zearn Math, such as whether and how teachers used it in their instruction, what types of guidance or support they received to use Zearn Math, and their perceptions of its effectiveness for their students.

In our interviews with school leaders, we asked about school context and goals, as well as existing structures to support math instruction (e.g., professional learning structures, data-use practices). We also asked whether school-level structures were in place to promote Zearn Math; this included questions about the leaders' visions for Zearn Math's implementation, how the leaders communicated about Zearn Math with teachers, how they delegated responsibility for Zearn Math's implementation, and their perceptions and feedback about Zearn Math.

To gather contextual information about district policies, we spoke with staff members from the district's central office and from Zearn a handful of times over the study period. We also reviewed documentation from Zearn and from the school district. We did not systematically analyze the content of these meetings but used information from them to inform contextual sections of this report.

See Table C.1 for a list of case study interviews broken down by the number of interviews per subject type.

Analysis

We used an iterative approach to our qualitative analysis. After each site visit, we wrote summaries of our impressions and takeaways from the visit. On completing data collection, we developed a cross-site summary highlighting themes, similarities, and variations across all of the schools. We used these summaries to stimulate discussion and inform our approach to a more formal analysis.

TABLE C.1
Case Study Interviews by Year

Interview Subject Type	Year 1	Year 2
3rd grade teachers	15	27
4th grade teachers	18	20
5th grade teachers	13	9
Instructional leaders	6	7
Principals	5	6
Total	57	69

We coded interview transcripts in Dedoose using a thematic coding scheme that incorporated inductive and deductive codes. We met regularly to establish and maintain intercoder reliability. We used coded excerpts of interview transcripts to generate case study write-ups for each campus.

We analyzed coded text excerpts to compare similarities and differences within and across case study schools. These write-ups included sections for the school's context, the school-level approach to implementation, the classroom-specific approach to implementation, and feedback about Zearn Math as a platform. We looked for patterns and areas of variation within and across schools and triangulated these findings with survey data.

After the study's second year, we went through a similar process. In addition to comparing the case study sites with each other, we also did a year-over-year comparison for each site. We wrote analytic memos about emerging themes and discussed them as a team. It was through this analysis of the changes in conditions between years one and two that we identified the major strategies that we highlight in this report.

References

Coburn, Cynthia E., Heather C. Hill, and James P. Spillane, "Alignment and Accountability in Policy Design and Implementation: The Common Core State Standards and Implementation Research," *Educational Researcher*, Vol. 45, No. 4, May 2016.

Comstock, Meghan, Anna K. Edgerton, and Laura M. Desimone, "Connecting Policy to Practice: How State and Local Policy Environments Relate to Teachers' Instruction," *Teachers College Record*, Vol. 124, No. 11, November 2022.

DeArmond, Michael, Paul Hill, Kate Destler, and Christine Campbell, *Whack-A-Mole: School Systems Respond to Disrupted Learning in 2021*, Center on Reinventing Public Education, March 2022.

Destler, Kate, and Paul Hill, *Back to School, but Not Caught Up: After School Reopenings, Administrators Eager to Tackle Learning Loss Continue to Face Challenges*, Center on Reinventing Public Education, November 2022.

Escueta, Maya, Andre Joshua Nickow, Philip Oreopoulos, and Vincent Quan, "Upgrading Education with Technology: Insights from Experimental Research," *Journal of Economic Literature*, Vol. 58, No. 4, December 2020.

Goughnour, Thomas, and Christopher Joseph Doss, *An Analysis of Zearn Math Implementation Costs*, RAND Corporation, RR-A4924-1, 2026. As of September 3, 2026: http://www.rand.org/pubs/research_reports/RRA4924-1.html

Holt, Laurence, "The 5 Percent Problem: Online Mathematics Programs May Benefit Most the Kids Who Need It Least," *Education Next*, Vol. 24, No. 4, Fall 2024.

Ikemoto, Gina Schuyler, Jennifer L. Steele, and John F. Pane, "Poor Implementation of Learner-Centered Practices: A Cautionary Tale," *Teachers College Record*, Vol. 118, No. 13, December 2016.

Pane, John F., Christopher Doss, Ivy Todd, and Dorothy Seaman, "Efficacy of Zearn Math over Two Years in Grades 3 to 5: An Experiment in Texas," Annenberg Institute, Brown University, EdWorkingPaper No. 25-1211, June 2025.

Phillips, Andrea, John F. Pane, Rebecca Reumann-Moore, and Oluwatosin Shenbanjo, "Implementing an Adaptive Intelligent Tutoring System as an Instructional Supplement," *Educational Technology Research and Development*, Vol. 68, February 2020.