



TECHNOLOGY TAKES COACHING TO SCALE

INVESTING IN INNOVATION GRANTEES SHOW HOW IT'S DONE



WHAT IS i3?

The Investing in Innovation Fund (i3), established under the American Recovery and Reinvestment Act of 2009, is a federal discretionary grant program at the U.S. Department of Education, within the Office of Innovation and Improvement. It provides funding to support school districts and nonprofit partners to implement and scale innovative, evidence-based practices. The i3 program has invested \$1.4 billion in 172 projects across all 50 U.S. states. For more information, visit www.i3community.ed.gov.

BY NICOLE BRESLOW

In recent years, there has been increasing interest in the use of video and other technology tools to support professional learning. A growing body of evidence shows how these tools are improving teachers' practice (Borko, Jacobs, Eiteljorg, & Pittman, 2008; Grant & Kline, 2010; van Es & Sherin, 2010). However, there has been less focus on the potential of technology tools to bring promising and proven professional development models to scale. Let's look at how eight grantees of the Investing in Innovation Fund (i3) are using video and other technology tools to strengthen, scale, and sustain their instructional coaching models.

TECHNOLOGY SUPPORTS EXPANSION

Instructional coaching can be a powerful strategy for improving teacher practice and raising student achievement. However, the high cost of implementing these models and the challenge of finding high-quality coaches often make it difficult to expand and sustain coaching in schools and districts. Technology helps i3 grantees address these challenges by

- **Reducing the costs of coaching.** Virtual coaches who provide off-site coaching support can manage a larger caseload than in-person coaches by eliminating the time spent

traveling from school to school. Collaborative coaching models, aided by technology that supports virtual communication and collaboration, also enable coaches to manage larger caseloads, reducing the cost of coaching per teacher.

- **Enabling teachers to have access to high-quality, content-specific coaches, regardless of where they live.** Although geography limits the pool of qualified coaches in an in-person coaching model and can make expansion difficult, virtual coaching models benefit from an expanded pool of

i3 GRANTEES' COACHING MODEL FEATURES								
Feature	Texas Tech	New Teacher Center	Aspire	California Education Round Table	The New Teacher Project	ELLA-V	ExCELL-E	National Board for Professional Teaching Standards
Interaction between coaches and teachers is primarily in person.	•	•	•					•
Interaction between coaches and teachers is primarily virtual.				•	•	•	•	
Incorporates web-based resources that can be accessed asynchronously.		•	•		•		•	•
Uses videos of exemplary instruction (video libraries).			•				•	•
Uses videos of teachers' own practice.			•		•	•	•	
Teachers participate in PLCs or group professional development sessions that connect with the coaching.	•	•		•	•	•		
Uses videos of coaching conversations as a learning tool for coaches.	•	•			•			

- potential coaches.
- **Reducing scheduling and other logistical challenges** that can make coaching difficult to sustain. Finding time for teachers and coaches to meet for pre- and post-observation conferences and for teachers to visit model classrooms is less of a challenge with technology tools that enable teachers

and coaches to communicate and collaborate anytime, anywhere.

- **Giving teachers access to high-quality resources to support their learning**, such as videos of exemplary teaching and related instructional materials. Although the instructional resources available in in-person coaching models may vary

depending on the proficiency of other teachers in the school or the ability of the coach to model lessons in a particular content area, video libraries can give all teachers access to high-quality resources that can address their specific needs. This helps coaching models maintain a high quality while scaling their reach.

THREE SURE APPROACHES

i3 grantees are using technology in a variety of ways to enhance their coaching models and address barriers to scale and sustainability (see table on p. 56). Here are three approaches they're taking to integrate technology into coaching.

Content-rich platforms

Many grantees have designed content-rich resource platforms that enable teachers to control the time, place, pace, and path of their learning. These platforms often incorporate video libraries of exemplary teaching and complementary instructional resources with integrated coaching supports that help teachers use these videos more purposefully and connect them to their own classrooms. Some platforms provide coaching and reflection tools that allow teachers to communicate and collaborate with one another and with coaches asynchronously.

For example, the National Board for Professional Teaching Standards has developed ATLAS, an online library of accomplished teaching. Each video is paired with instructional materials and written reflections and analysis from the teacher. Together, each "video case" provides a clear picture of what accomplished teaching looks like, as well as insights from the teacher about his or her planning and intentions for that lesson and reflections for improvement, according to Caitlin Wilson, senior manager of improvement coaching at the National Board for Professional Teaching Standards, and Christina Carlson, instructional specialist in the Yakima School District in Washington.

The videos are tagged to a number of common teaching frameworks, such as the Common Core State Standards and Next Generation Science Standards, as well as to various subjects and grade levels, making it

PARTICIPATING i3 PROJECTS

- Aspire Public Schools, *Transforming Teacher Talent*
- Texas A&M University, *English Language and Literacy Acquisition Validation Study (ELLA-V)*
- Temple University, *Exceptional Coaching for Early Language and Literacy-Enhanced*
- National Board for Professional Teaching Standards, *Building a Pipeline of Teaching Excellence*
- New Teacher Center, *Launching the Next Generation of Effective Educators*
- Texas Tech University, *Competency-Based Educator Preparation and School Intervention*
- The New Teacher Project (TNTP), *Teacher Effectiveness and Certification Initiative*
- California Education Round Table, *STEM Learning Opportunities Providing Equity*

easy for users to find resources that meet their needs. The National Board for Professional Teaching Standards is piloting ATLAS in teacher preparation programs and local education agency sites across the United States.

Temple University's ExCell-e developed an online, asynchronous version of its face-to-face professional development program for early childhood teachers to reduce costs while maintaining quality, making it possible to scale the program to other sites, says associate professor Annemarie Hindman. Teachers complete nine online modules addressing specific instructional strategies to help students build language and vocabulary skills.

The modules incorporate videos of accomplished teachers using the classroom practices addressed in

that module. At the end of each module, teachers must implement the instructional strategies in their classroom and record their practice. Coaches view these videos remotely and provide written feedback to the teacher before having a phone or video call to discuss the feedback.

Videos of teacher practice

Other grantees are recording teachers' practice to enable coaching from a distance, deepen teacher reflection, and improve coach feedback. Tools that allow coaches and teachers to annotate these videos of teacher practice, such as Torsh TALENT or Teachscape, are particularly useful. They enable coaches to be more specific in their feedback, and they tighten the focus of the coaching conversation on the relationship between teacher practice and student learning.

The New Teacher Project has shifted from in-person coaching to virtual coaching as a way to scale and bring more consistency to its coaching approach across multiple sites, says project director Erin Martin. Teachers use a smartphone, video camera, or webcam to record their teaching and then upload the video clips to an online portal. Within three days, coaches provide detailed feedback, including time-stamped comments and specific action steps. The coach and teacher then debrief and discuss next steps by phone.

Tools for virtual communication

As part of their coaching models, grantees are also using tools for live virtual communication to allow teachers and coaches to collaborate and share resources anytime, anywhere. These tools enable synchronous and asynchronous collaboration across schools and support the sharing of student work and instructional resources. They also facilitate

IDEAS

relationship building, which is crucial to successful coaching relationships.

For example, in its STEM initiative, the California Education Round Table has coaches working with small groups of middle and high school mathematics teachers to guide them through the responsive teaching cycle, a reflective process that helps teachers collaboratively design instruction to meet students' learning needs.

Groups of teachers meet together and with coaches virtually using Google Hangouts, a platform that is freely available and can be used with any device. They also use Google Drive to store all their instructional resources. These technology tools enable teachers to collaborate across school districts. Because they're free, they will support the continuation of this work beyond the life of the grant, say Sharon Twitty, executive director of the Alliance for Regional Collaboration to Heighten Educational Success, and Ivan Cheng, secondary education professor at California State University, Northridge.

LESSONS LEARNED

Here are key lessons learned in i3 grantees' efforts to strengthen, scale, and sustain their coaching models, as well as the role technology has played in their efforts.

Integrate coaching into teachers' day-to-day work.

Integrating coaching into the local context is crucial for models that are primarily virtual and don't have a physical presence in the school. Many grantees are connecting their coaching work to the work of professional learning communities (PLCs) to integrate their coaching support into a larger network of supports.

School leaders also play a key role in helping to strengthen connections between coaching and teachers' daily work. When coaches and principals are



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in frequent communication about the goals and progress of teachers in their school, principals are able to reinforce this work in their conversations with teachers.

For example, Aspire Public Schools has developed a comprehensive system of support for teachers that integrates its teacher evaluation process with its targeted approach to professional development, which includes coaching. Aspire's teammate effectiveness program manager Anne Marie Ferruzzi, director of solution delivery Heather Berkley, and project manager Dawn Albert say embedding coaching in this larger system of support makes it highly relevant to teachers on a daily basis.

On Aspire's BloomBoard resource platform, teachers have access to a video library of self-recorded clips from exemplary Aspire teachers and instructional resources such as lesson plans, lesson materials, and interviews with the recorded teacher, all tagged to specific indicators of effective teaching and to specific grade levels and content areas. Teachers use these resources to support their self-directed professional development, as well as in their work with coaches.

When teachers are observed as part of the evaluation process, they can view their observation results on the BloomBoard platform and link directly to resources that align with the areas they are working to improve. Integrating the systems for teacher evaluation and teacher support has

helped teachers view the process of evaluation as useful for their growth and has strengthened the connections to their day-to-day work.

Build coaching relationships intentionally.

With increasing opportunities for technology-supported interactions between coaches and teachers and less time spent developing relationships in person, schools need to build trust more intentionally than before.

Creating occasional opportunities for face-to-face interactions is useful, particularly at the start of a relationship. If this is not possible, videoconferencing technology can help, such as Skype and Google Hangouts. Many grantees require coaches to hold an initial introductory conversation with teachers that focuses on getting to know their context, establishing credibility, and building trust.

At the New Teacher Center, establishing trust is particularly important when asking teachers to record and share videos of their teaching practice. When coaches record their coaching conversations with teachers, they explain that they also will receive feedback about their own coaching practice from coach peers to support their improvement as a coach. Modeling the use of video as a learning tool for coaches can help ease the way for teachers who are hesitant to record their instruction.

Some New Teacher Center coaches

GRANTEES' KEY TECHNOLOGY TOOLS			
Project	Key technology tools	Purpose	Custom (C) Existing (E)
Aspire	BloomBoard	Stores a resource library of exemplar videos and a recommendation engine.	E
California Education Round Table	Google Hangout	Collaborative coaching conversations with groups of teachers.	E
	Google Docs	Houses a shared repository of curriculum activities and resources.	E
ELLA-V	IRIS video camera, ear piece, and microphone	Live virtual coaching.	E
	TeleForm	Recording and sharing student data.	E
	Citrix GoToMeeting	Virtual meetings with individual teachers who need additional coaching support.	E
ExCELL-e	ExCELL-e website	Houses the training modules.	C
	YouTube and MoviePro	Uploading and sharing teachers' videos.	E
National Board for Professional Teaching Standards	ATLAS	A searchable video library of accomplished teaching with instructional materials and written reflections from the teacher.	C
New Teacher Center	Learning Zone	Stores coaching tools and resources.	C
	Torsh TALENT	Uploading, sharing, and annotating teachers' videos.	E
Texas Tech	Teachscape	Uploading, sharing, and annotating teachers' videos.	E
The New Teacher Project	Different platforms are used depending on the project, including BloomBoard, Blackboard, Teachscape	Uploading, sharing, and annotating teachers' videos.	E

also send teachers a brief introductory video message and ask teachers to record and send one back. This helps teachers get comfortable using the technology and seeing themselves on video, say Victoria Hom, director of federal grant programs, and Taiesha Woodson-Durham, induction coach at the New Teacher Center.

Invest in coach training and support.

The quality of the coaches is the greatest factor in the success of any coaching model. As 13 grantees expand their coaching models, many have established a lead coach role as a key

lever for building coach capacity.

These lead coaches observe coaches' conversations with teachers, often using video recordings, and provide feedback about their practice.

Coaches also work with lead coaches to set and monitor goals to guide their growth. In this way, coaches are engaged in a professional learning process that mirrors the process they facilitate for teachers. Establishing a lead coach role also ensures that there is dedicated time and focus for coach support and development.

Texas Tech's evaluation is finding that coaches who have the most training

and support and who are consistently implementing the coaching model with fidelity are showing the greatest improvements in student achievement and teacher practice, say Irma Almager, assistant professor of educational leadership, and Fernaldo Valle, associate professor of educational leadership.

School-based coaches working with Texas Tech University record their coaching conversations with teachers, as well as the coaching conversations that take place during the PLC meetings they facilitate, and they share these videos on Teachscape, their technology platform of choice.

Grant leaders who provide coach training and support review these videos and provide feedback to coaches based on rubrics that define effective coaching practice. Coaches also meet in their own PLC to learn together and build a community of coaches.

Select technology tools to support coaching with sustainability in mind.

When making decisions about what technology tools to use, project directors need to be realistic about initial and ongoing technology costs and the ability of schools and districts to support these costs beyond the life of the project. Using existing technology that schools already have or that is freely available goes a long way toward enabling sustainability.

i3 projects use many different technologies for a variety of purposes (see table on p. 59). Some projects custom-built their own tools, whereas others used or adapted existing tools. Grantees agreed that it's preferable to use or adapt an existing platform for video storage and teacher/coach collaboration rather than building one's own when possible.

It takes an enormous amount of money, time, and effort to build a platform, and many existing tools can be customized. Custom technology is also harder to manage and more expensive to sustain.

Texas A&M University's ELLA-V project is unique to i3 in its use of bug-in-ear technology, which allows coaches 500 miles away to give immediate, actionable feedback to teachers in the classroom. This live coaching enables teachers to alter their pattern of teaching in real time and see immediate results with their students.

Rafael Lara-Alecio, regents professor of educational psychology, Beverly Irby, professor and associate dean for academic affairs, educational administration and human resource



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development, and Fuhui Tong, associate director of the Center for Research & Development in Dual Language & Literacy Acquisition, explain that teachers use IRIS Connect technology, which includes a video camera that provides a 360-degree view of the classroom, as well as earpieces and microphones. ELLA-V has found the high expense of the cameras and platform to be a significant challenge in expanding and sustaining the work. Project leaders are working to develop a more cost-effective platform and hardware that will maintain the high quality at a much lower cost.

RESULTS: IMPACT AND SUSTAINABILITY

One goal of the Investing in Innovation program is to generate high-quality evidence about the implementation and outcomes of innovative practices to inform policy decisions. Six of the eight projects highlighted in this article have final evaluation data available. The other two projects will be completed later this year. Let's take a look at this final and preliminary data.

ExCELL-e. A randomized controlled trial study showed that teachers who receive a full year of the ExCELL-e professional development, including nine modules of evidence-based content and monthly sessions of personalized coaching, make significant gains in the quality of their language

and literacy instruction using the gold-standard Classroom Assessment Scoring System measure.

Gains were apparent in concept development, language modeling, and the quality of feedback provided to students. The greatest teacher gains involved supporting dual-language learners in building English language and vocabulary (Hindman et al., 2015). Because this model involved web-mediated coaching, coaches were able to serve at least 30% more teachers than in traditional face-to-face models.

New Teacher Center. Evaluation studies find that a higher percentage of new teachers supported by New Teacher Center demonstrate proficiency in engaging students in learning and in using assessment in instruction compared to teachers who are not supported by the center.

After two years of support, students of New Teacher Center-supported teachers in grades 4 through 8 demonstrated three to five months of additional learning in reading compared to students of the control group teachers, who received traditional new teacher support.

Further, after two years of support, the students of New Teacher Center-supported teachers demonstrated learning gains at the same level as students of veteran teachers for both elementary and secondary levels in math and English language arts. In 2015-16, New Teacher Center reached

more than 40,000 teachers, 7,500 mentors/coaches, and 3.4 million students. By 2019-20, the center hopes to reach 135,000 educators and more than 8.5 million students.

Aspire Public Schools. Aspire Public Schools substantially improved teachers' practice after introducing the Transforming Teacher Talent (t3) system of technology tools and support. There was a positive and statistically significant gain in teachers' scores on the Aspire Instructional Rubric.

STEM Learning Opportunities Providing Equity (SLOPE). Sixteen of the 28 Algebra I teachers involved in the program participated regularly enough and for enough time to reach the threshold for fidelity. Students with low-fidelity treatment teachers scored significantly lower than control students and students with high-fidelity treatment teachers.

The lessons learned from i3 have been applied to the SLOPE professional development model and are currently being implemented as Applying College and Career Equity-based STEM Strategies (ACCESS). ACCESS is currently being implemented in 20 districts and 41 school sites, involving more than 145 teachers and 25 coaches.

The New Teacher Project. Teachers who are randomly assigned to yearlong coaches receive higher scores on classroom observations than teachers who are not working with a coach. Further, teachers have reported that video is helping to make feedback more specific and useful, suggesting even more potential for this approach. Virtual coaching has had a similar impact on in-person coaching, and virtual coaches can serve double the number of teachers as in-person coaches and get the same results.

Texas Tech University. Four of the seven secondary schools that participated in the instructional coaching collaborative made significant

gains in math performance. In addition, schools with the greatest gains in students' math performance had the highest levels of school principal support.

English Language and Literacy Acquisition Validation Study (ELLA-V). Preliminary results from the randomized control trial study using the Transitional Bilingual Observation Protocol revealed that 1st-grade bilingual teachers who received virtual professional development and virtual mentoring and coaching allocated 10% more instructional time to teaching cognitive content involving higher-order thinking and reasoning.

They also spent an average of 10% more instructional time in English as a Second Language strategies, including questioning, academic language scaffolding, and collaborative/cooperative grouping.

Students in these classrooms were also more engaged in their learning as compared to their peers in control classrooms. In summary, teachers have benefited from virtual professional development and virtual mentoring and coaching (Tong et al., 2017).

In the past year alone, web-mediated virtual professional development and virtual mentoring and coaching enabled coaches to provide effective support to 77 1st-grade bilingual teachers on 40 elementary campuses within seven school districts across Texas.

National Board for Professional Teaching Standards. Preliminary results indicate a higher level of self-efficacy and self-reflection in preservice and early career teachers who used its online library of accomplished teaching, ATLAS, in comparison to their peers. ATLAS access has now grown to over 80 institutions of higher education, 20 school districts, and two state departments of education.

GOING FORWARD

As we shift to a more personalized instructional model for both students and teachers, there's an even greater need for coaches who can provide skillful support targeted to teachers' specific learning needs. The evidence from these i3 projects points to the promise of technology as a tool to strengthen and expand the impact of coaching on teacher practice.

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