

# Emerging Solutions

## Engaging Teachers in Meaningful Online Learning Experiences



The University of Texas at Austin  
Charles A. Dana Center

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*Teachers deserve professional learning experiences that are timely, easily accessed, and relevant to their classroom practice. Collaborative online professional learning sessions can provide those experiences.*

Each year, approximately \$18 billion is spent on professional development programs for this country's teachers, with mixed impacts on their classrooms.<sup>1</sup> For many teachers who participate in these programs, the topics are not relevant to their daily practice.<sup>2</sup> Even when the sessions are content-focused, they may comprise only a few hours of learning,<sup>3</sup> often happening at the beginning of a semester with no ongoing follow-up throughout the year. How can learning be made timelier and more relevant so that the investment in teachers' professional growth leads to positive outcomes for students?

During the 2019–2020 and 2020–2021 academic years, the Charles A. Dana Center at The University of Texas at Austin, Agile Mind, Inc., and the New York City Department of Education (NYC DOE) began an 18-month collaboration to investigate this question by testing a novel design for professional learning: *collaborative online professional learning sessions*.

## Collaborative Online Professional Learning Versus Other Models of Professional Development

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Prior to the COVID-19 pandemic, professional learning for teachers most often took the form of a series of face-to-face professional development sessions or online webinars. Face-to-face sessions were usually delivered in 6-hour increments over a period of consecutive days during the summer or at the beginning of the school year. Additional face-to-face sessions were sometimes offered at the midpoint of the school year.

Traditional online webinars usually consist of 1- to 2-hour experiences focused on a particular topic. While online webinars offer teachers more flexibility in terms of timing, attendees usually participate passively, often in isolation. There may be no live moderator or, if a moderator is present, the flow of information is one-way, from moderator to participants. Traditional webinars rarely provide opportunities for discussion among participants.

Unlike traditional online webinars, collaborative online professional learning sessions engage groups of participants in facilitated learning experiences, similar to those found in face-to-face professional development sessions. Effective collaborative online learning sessions are much shorter than traditional face-to-face sessions, usually running no longer than 90 minutes, and occur more frequently throughout the year. This design allows online sessions not only to deliver the same number of hours of professional learning as traditional face-to-face sessions, but also to offer sessions throughout a semester to maintain classroom connection. Each session can focus on a current content topic or problem of practice, allowing teachers to try out activities and strategies in their own classrooms and then, at the next session, discuss successes and challenges with other teachers.

Such a design is especially important in education systems serving disproportionately high numbers of students who are Black, Latino, Indigenous, English learner designated, or experiencing poverty, where the mismatch between the content and timing of professional learning sessions and the needs of practitioners is especially pronounced. In these systems, many teachers are new to practice or are uncertified in secondary mathematics. These teachers therefore struggle in their induction, falling significantly behind the course pacing during the first six-week grading period. Collaborative online learning sessions might effectively address the needs of these teachers.

## Project Overview and Activities

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The Dana Center/Agile Mind/NYC DOE collaboration was part of a cohort of Professional Learning Partnerships (PLP) supported by the Bill & Melinda Gates Foundation to explore how curriculum-connected professional learning enhanced teachers' use of high-quality curriculum in core academic subjects. This

PLP cohort comprised 20 service and content providers who collaborated with 14 school districts across the country working with high-quality curricula in middle school English/Language Arts, middle school science, and middle and high school mathematics. The PLP work of the Dana Center/Agile Mind/NYC DOE centered on the Agile Mind high school mathematics programs, authored by the Dana Center.

As part of this PLP, the Dana Center and Agile Mind, in collaboration with leaders in the NYC DOE, developed and delivered a series of collaborative online professional learning sessions to middle and high school teachers, using the programs at 17 participating New York City campuses. The sessions began in the spring of the 2019–2020 academic year and continued into the spring of the 2020–2021 academic year. Sessions were organized into four learning “arcs” focused on deepening teachers’ understanding of how to use the Dana Center–Agile Mind programs to meet the learning needs of priority students.

Each of the four arcs consisted of 3 or 4 synchronous virtual collaborative learning sessions that ran 60–90 minutes. Each arc also included asynchronous bridge to practice activities between each synchronous session. Session facilitators, including experts in mathematics and professional learning from both the Dana Center and Agile Mind, used the videoconferencing platform Zoom for the synchronous virtual sessions. The facilitators introduced the social learning platform Participate midway through the project to provide further asynchronous support for session participants.

Three arcs were delivered in 2020, with a fourth arc in early 2021. Arc 1 focused on fostering students’ social, emotional, and academic development (SEAD) through mathematics instruction. Prior to the launch of Arc 2 in spring 2020, New York City schools made the transition to remote instruction due to the COVID-19 pandemic. Consequently, this arc focused on strategies for using the Dana Center/Agile Mind programs in both synchronous and asynchronous modes of instruction to keep students on track with grade-level content while learning remotely. Arc 3 focused on reconnecting the PLP cohort and building community as well as teachers’ capacity to use the curricular resources effectively in virtual learning environments. Arc 4 focused on helping teachers understand key design elements of the curricular resources, and leverage embedded supports to strategically address prerequisite knowledge in grade-level content and engage special populations in grade-level content.

2020											2021		
Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Arc 1: <i>Supporting Students’ Social, Emotional, and Academic Development</i>		Arc 2: <i>Keeping Students on Track, on Time</i>						Arc 3: <i>Starting on Track, Staying on Track</i>				Arc 4: <i>Understanding by design</i>	

### Indicators of Promise

Although the COVID-19 pandemic caused severe challenges for teachers and learners throughout most of the project, there were indications that, for participating teachers, these virtual offerings provided meaningful support for their Agile Mind implementation.

### ***Promising indicators during the project***

After completing the Arc 1 series of three 90-minute online collaborative learning sessions and related asynchronous bridge to practice sessions, teachers reported that the ideas and strategies shared in the sessions were applicable to their work and were easy to implement. Because Agile Mind tools require students to collaborate on rigorous mathematical tasks, the SEAD strategies supported teachers in helping students access this work and shaping student beliefs about their abilities to engage in this work. At the end of this arc, almost three-fourths of the teachers were accessing Agile Mind regularly.

Unfortunately, during the launch of Arc 2, the schedules for students and teachers were changed as the NYC DOE responded to the pandemic; as a result, some of the cohort was not able to attend the new sessions. However, the Dana Center and Agile Mind continued to see increased usage of the programs by participating teachers. Over the course of one week that included the second session, teacher online participation increased by almost 10 percent and student online participation by 33 percent. At the end of the arc, teachers reported increased comfort with using the different Agile Mind tools for remote instruction. One teacher stated, “We have been using Agile Mind for 3 units now, and it has been so amazing the progress our students are making.”

In Arc 3, participants shared some of their successes using Agile Mind. According to one participant, “Students have been able to get excited about topics and become committed to learning as a result of the explore tasks at the beginning of each topic. Students see the real world connections.” Another participant stated, “A lot of students who struggle have more access and I’ve seen they are more willing to participate in the discussion.” All participants reported that the Understanding by Design process, which was demonstrated and practiced during these sessions, helped them discern the supports available in Agile Mind topics. As one participant stated, “[I will] look through all of the questions and determine what objective seems to be the emphasis of the unit instead of relying so much on ‘how heavily is this tested on the Regents?’”

### ***Findings from external evaluation***

Project evaluators administered a retrospective pre-post survey<sup>4</sup> to measure changes in teachers’ knowledge of concepts and strategies learned through the project activities and teachers’ levels of confidence in their ability to implement those learnings. Teachers were asked to rate their levels of knowledge and confidence in several areas at two points in time: before the project began and in June 2021, after the learning sessions had ended. Unfortunately, only two participants responded. While the results are not representative, they do provide perspectives from two teachers at different levels of knowledge and confidence.

A middle school teacher (grades 6 and 7) rated her knowledge at the beginning of the project as *advanced beginner*<sup>ii</sup> in 75% of the areas addressed by the survey prior to the project’s inception. At the end of the project, this teacher indicated growth in each of those areas, rating herself as *competent*.<sup>iii</sup> This same teacher indicated that her confidence in being able to implement the concepts she had learned also increased for all areas addressed by the survey. Her initial ratings of *cannot do at all or moderately can do* prior to the project shifted to *moderately can do or highly certain can do* by the end of the project.

<sup>i</sup> Regents examinations are administered to high school students in Algebra I, Geometry, and Algebra II as part of the New York State testing program.

<sup>ii</sup> *Advanced beginner* = I build my knowledge of facts, recognize previously undefined facts, obtain more information relative to the teaching-learning process, and increased my knowledge of relevant vocabulary, concepts, and principles.

<sup>iii</sup> *Competent* = I am beginning to recognize more context-free principles and concepts as well as situational elements. I have some understanding of concepts and principles that hold for most learners in a variety of situations and of other principles and concepts that apply only in specific situations.

An Algebra I teacher, who had rated her knowledge as *proficient*<sup>iv</sup> prior to the beginning of the project in all areas addressed by the survey, rated herself as *expert*<sup>v</sup> at the end of the project in the area of understanding the importance of students' SEAD to academic success. This teacher's confidence, already high prior to the project, did not change.<sup>5</sup>

In an after-project interview, one participant indicated that the activities during the sessions changed her instructional practice: "Now, through Agile Mind, we're doing more projects, we're doing more hands-on. Seeing the kids grow in that way, I think that organization, that thinking, the critical thinking process, and problem-solving process that I see, I think that made me think that I need to do things differently." The same teacher indicated she now had higher expectations of her students as a result of her implementation of Agile Mind. She also reported a sense of ownership and connection to the curriculum as a result of the sessions.<sup>6</sup>

### ***Indicators beyond the project***

The NYC DOE, the Dana Center, and Agile Mind have applied their learnings from the PLP project to other areas of their work.

An NYC DOE leader shared, "During the initial pandemic surge, our partnership had to pivot numerous times to meet the needs of our participants. Given the nature of increased demands on teachers, we needed to give participants the most applicable and practical session as possible as they had competing priorities with a limited amount of time. This idea of giving participants agency to explore content and literature that is relevant to them at this time is one aspect of the project that has continued to live on in our own professional learning offerings. The DOE's PL offerings continue to be remote and last for a shorter duration than prior to the pandemic. We understand that teachers, schools, and learning communities are all in different places. Thus, we write our sessions for opportunities to explore different ideas, all of them focused on a key question or topic."

When the pandemic required Agile Mind to shift from face-to-face professional development sessions to virtual offerings, the design of the PLP sessions directly influenced their design for professional learning. "When the pandemic hit, we were able to immediately 'flip, flesh out, and scale' virtual offerings based on the work of the PLP to serve schools," said one Agile Mind leader. According to one Ohio teacher who participated in the new online sessions, "This PD sets the bar for how Virtual PDs should be conducted... it should be shared with all divisions/schools so that teachers are able to see a truly engaging virtual experience."

The PLP also informed development of content for many of Agile Mind's professional learning offerings, including the protocols for sessions for mixed groups of teachers from multiple subject areas. Additionally, according to another Agile Mind leader, "The PLP work sharpened our approach to how we address lesson planning in our professional learning protocols. Our focus has always been to move teachers toward productive decision making in using Agile Mind by helping them become more fluent in making instructional decisions using the Advice for Instruction. With COVID, and following the PLP model, it was imperative that we double down on this approach so that teachers knew confidently that they had expert advice for every day of instruction, even when, with social distancing, they may not have had easy and consistent access to fellow teachers and other instructional coaches when they had questions or needed support as they planned for instruction."

<sup>iv</sup> *Proficient* = I identify the important elements of the task very quickly, very easily. My learning and implementation style is fluid and allows me to implement decisions based on intuitive understandings—those that come out of my experiences. My understandings are so internalized that I sometimes cannot even state why it is that I am thinking or taking actions in particular ways.

<sup>v</sup> *Expert* = My thoughts and actions are experience-based, similar to that achieved at the proficient stage, but in a more holistic manner. I am able to comprehend and handle large quantities and varieties of information, data points, and patterns. The main reason I am an expert and not just proficient is that my actions almost always work or are effective. I make fewer mistakes at the Expert level than I did at the Proficient level. My performance may be viewed as almost perfect.

Agile Mind has also begun to investigate hybrid models of professional learning experiences (face-to-face interspersed with collaborative virtual offerings) with some promising results. Finally, the PLP work has helped shape the way Agile Mind's sales force talks about professional learning. An Agile Mind leader noted, "They are able to advocate more clearly for the value of curriculum-connected professional learning and have increased confidence in advocating for virtual delivery models."

The Dana Center is applying the lessons learned from PLP as part of an Effective Implementation Cohort<sup>vi</sup> (EIC) with two Texas school districts that are implementing Agile Mind's middle school mathematics programs. In one district, virtual sessions are interspersed with face-to-face learning sessions. In the second district, the sessions are entirely virtual, with expectations that teachers will practice what they learn between sessions. The PLP session arc that addressed key design elements of the curriculum has heavily influenced the content for many of the professional learning sessions in both districts.

In discussing the work in one of the districts, a Dana Center facilitator reported, "Most of the teachers are very new to teaching; many are long-term subs. They are learning Agile Mind at the same time they are learning about content and pedagogy. By analyzing assessments, Advice for Instruction, and key content pages, they are able to deepen their understanding of the standards-centered mathematics they are teaching while growing their pedagogical repertoire and building their curriculum literacy. We are able to leverage the educative nature of the curriculum in this way."

The Dana Center is also using the learnings from PLP to inform its curriculum design work. Conversations with the teachers during PLP reinforced the need for content authors to reflect carefully on the different experiences of students to ensure that the problem-solving contexts they author for curriculum are broadly accessible and relevant in all of the Dana Center/Agile Mind student-facing course programs. For instance, students in New York City schools did not find problems focusing on lawnmowing relevant. This feedback will directly inform the variety of settings and activities in future curriculum as well as specific advice to teachers about how to modify or replace scenarios when needed.

## Potential Improvements

The COVID-19 pandemic had a dramatic impact on teachers' ability to participate fully in the PLP project; for this reason, the collaborators were not able to test the project design fully to understand what changes, if any, would improve it. One possible improvement to the design is to introduce a hybrid model, with brief in-person sessions interspersed with the virtual experiences. For example, this project launched with a face-to-face session in January 2020 to introduce the curriculum to teachers and leaders. While a second face-to-face session was contemplated for that summer, it could not be held due to the pandemic.

Another possible improvement is to introduce the social learning platform earlier in the project, with incentives for participation to further strengthen the learning community. Despite all of the challenges, however, indicators suggest that online collaborative learning sessions interspersed with bridge to practice activities can effectively support meaningful enactment of high-quality curriculum.

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<sup>vi</sup> The Effective Implementation Cohort, a multi-year project supported by the Bill & Melinda Gates Foundation, aims to generate insights on the key enabling conditions for effective implementation of a coherent instructional system (CIS).

## Endnotes

<sup>1,2</sup> Bill & Melinda Gates Foundation. (2015). *Teachers know best: Teachers' views on professional development*. Seattle, WA: Author.

<sup>3</sup> Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Dallas, TX: National Staff Development Council.

<sup>4</sup> Richman, A., & Wiggins, A. Y. (2021). *Teacher levels of knowledge and confidence survey: A retrospective pre/post*. Austin, TX: Charles A. Dana Center at The University of Texas at Austin.

<sup>5</sup> Richman, A., & Wiggins, A. Y. (2021). *Changes in teachers' levels of knowledge and self-efficacy: Interim evaluation findings for the peer-to-peer learning community*. Austin, TX: Charles A. Dana Center at The University of Texas at Austin.

<sup>6</sup> Richman, A., & Wiggins, A. Y. (2021). *Gates peer-to-peer evaluation report*. Austin, TX: Charles A. Dana Center at The University of Texas at Austin.

## About this resource

### About Charles A. Dana Center

The Dana Center develops and scales math and science education innovations to support educators, administrators, and policy makers in creating seamless transitions throughout the K–14 system for all students, especially those who have historically been underserved.

We focus in particular on strategies for improving student engagement, motivation, persistence, and achievement.

The Center was founded in 1991 at The University of Texas at Austin. Our staff members have expertise in leadership, literacy, research, program evaluation, mathematics and science education, policy and systemic reform, and services to high-need populations.

For more information about the Dana Center, see [www.utdanacenter.org](http://www.utdanacenter.org).

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