Tailored Professional Development

Project STAIR
Technical Report 17

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Purpose

The purpose of this technical report is to describe the development of and accumulated library of tailored professional development (PD) videos used in Year 1 (2018-19) and Year 2 (2019-20) in the Supporting Teaching of Algebra with Individual Readiness (STAIR) project. Tailored PD videos include a brief (2-10-minute) video on topics such as data-based individualization (DBI) or using manipulative to teach specific mathematical concepts. For the 2018-19 implementation, two PIs prepared videos. For the 2019-20 school year, the STAIR team brought in additional video creators due to a previously set goal of creating videos by graduate research assistants to include a more diverse pool of presenters to appeal to a general audience. Year 2 included videos with topics such as culturally responsive teaching and connecting research to practice as well as more mathematics content videos across a wider range of mathematical domains. Our team designed the videos to be viewed by participating teachers throughout coaching to meet specific areas of growth for each teacher.

By the end of Year 2, we created a total of 124 videos. The videos available from Year 1 included six videos that featured Erica Lembke explaining the foundations and implementation of DBI, and 75 explaining mathematics practices and providing examples of ways to use manipulatives and teach concepts to students who experience difficulty in mathematics using evidence-based instructional principles. Our team created 43 additional videos created during Year 2. Nine videos explaining classroom environment strategies such as procedures, active supervision, and opportunities to respond. Five videos focusing on a culturally responsive teaching series. Another 15 videos included additional mathematical domains and teacher practices. The teacher practices included explicit instruction: asking the right questions and enacting cognitively demanding tasks. While the mathematical domains included a series of videos focusing on linear expressions and factoring quadratic expressions. Five videos featured an introduction to geometry and a series of videos on graphing ordered pairs. Three additional videos

during Year 2 that focused on DBI instruction. The final videos were a creation of six videos featuring content on about instructional adjustments.

We identified the content for Year 2 Tailored PD videos in several ways. First, GRAs identified teaching practices and topics in which they had expertise and could record video content. Second, Year 1 teachers provided feedback through an end of year survey, and they asked for more algebra videos. Some of the algebra-focused videos we created in Year 2 included the demonstration of manipulatives to help mathematics teachers understand how to use them in their teaching practice.

After each video script went through a vetting process to ensure high-quality content, we used a Lightboard video recording studio to record the Tailored PD videos. A Lightboard is a thin panel of glass, which presenters stand behind. Behind the presenter is a green screen. A computer replaces the green screen with the presenter's PowerPoint presentation, and the presenter can then draw on the Lightboard panel, interacting directly with the material presented in the PowerPoint. The presenter faced two monitors, one projecting the original PowerPoint presentation, and one showing the final product complete with the presentation, presenter, and any writing on the Lightboard layered on top of each other. The final video product was similar to a weather forecast production, with the presenter able to interact directly with the material and visible throughout the video. In addition, in the University of Texas at Austin (UT) Lightboard room, we had a document camera available to demonstrate the use of multiple manipulatives simultaneously or to zoom in on smaller manipulatives. We used the program Blackmagic as the recording software.

We edited the videos iMovie until midway through Year 1 to produce succinct, clean final copies of the videos. Then, we made a switch to Adobe Premiere Pro to edit the videos. After editing, we posted videos to our Project STAIR YouTube channel under playlist subsections, including:

- Best Practice for Math Teachers
- Teaching Quadratic Expressions

- Data-Based Individualizations
- Great 8 Classroom Management Strategies
- Practice to Research & Back to Practice
- Accessible Math Tasks
- Culturally Responsive Teaching
- Coordinate Plane/Grids
- Word Problem Instruction
- Introduction to Geometry
- Induction to Equations
- Integers
- Fraction Fundamentals
- Whole Number Computation

When posted to YouTube, we labeled videos with their title, followed by the playlist subsection, followed by the target age of student, according to state and national standards, and then finally a Project STAIR label. We created this system of labeling the videos after production and posting of many of the videos, and we are relabeling some videos currently. Our goal is to create a repository of videos in which teachers can search, either by content area or by standard, to find a corresponding video to meet their needs. The videos can be located at https://www.youtube.com/channel/UCE2puwDtUSNXFONIOhmYmvA/playlists.