

Individualizing Algebra Instruction with Video Explanations

The students in Ms. Meredith's algebra class are very diverse. She has very high-achieving students who grasp new concepts quickly and others who are struggling to understand. In addition, she has new students who have just come to the school who do not speak the same language as her other students. She wants to be able to provide individual attention to all of them, but she has found it very difficult.

Ms. Meredith finds videos on the Internet that provide explanations for many algebra concepts and procedures. Each video is short and shows a teacher working a problem on a whiteboard while explaining it. Some topics have videos with captions translating the audio into second languages, and others have different versions of the video created by teachers or students who speak different languages. She also finds a library of learning objects (which are short, text lessons) that include opportunities for practice and feedback.

Ms. Meredith is introducing a new topic to the class this week. She explains the concept and then asks students to work in pairs at their desks to solve a problem. After they finish, she has students use their smartphones or tablets to respond to a survey she created with Poll Everywhere. The survey shows the math problem that students have just worked, and several different answers. She asks students to use their smartphones or tablets to select the answer they believe is correct.

Ms. Meredith then works the problem at the front of the room and shows them the correct answer. She knows from the survey that many students are still confused, so she gives them the Internet address of videos and learning objects that explain the topic. Pairs of students watch the videos or use the learning objects to try to solve similar problems. The videos and learning objects help most students work independently while Ms. Meredith helps other students individually.

In order to keep students engaged in practicing this topic, Ms. Meredith asks each student to create a video explanation. Using Pixorial and their smartphones, students record themselves solving and explaining a problem. They share these videos by uploading them to a private site Ms. Meredith has set up for them. Using Poll Everywhere, the students vote for the videos that provide the best instruction.

Now, using their laptops and a video-editing application, the students edit the selected videos and upload them to their class "Algebra Academy" site, which Ms. Meredith has set-up for them.

As Ms. Meredith introduces new units, the students continue to select the best videos created by their peers, edit them, and add them to the "Algebra Academy" site. During the school year, the students use this site to recall how to solve problems and prepare for quizzes and tests.

Ms. Meredith knows that time management can be an issue when students use technology. She therefore uses two techniques to keep students on task and productive. First, when she plans to integrate students' use of technology in a lesson, she posts a sign on the whiteboard indicating that they will be using smartphones, tablets, and/or laptops. If there is no sign posted, the students know they should put away these devices. Secondly, she projects a countdown timer so students know how much time they have to finish their tasks, save their work, and store their devices.

Resources used in this scenario:

- Communication and collaboration (Audience Response Tool): [Poll Everywhere](#) *
- Video capture: [Pixorial](#) * and smartphones
- Video editing: laptops with video editing tool

Tools used in this scenario:

- Video explanations, [YouTube](#) * and [MathTV](#) *
- [Learning objects](#) *

For more mobile-learning case studies, download the Mobile Scenarios for K12 App.

- [Mobile Scenarios for Android](#) *
- [Mobile Scenarios for iOS](#) *