Case Study

Making Digital Learning Count: **Simplifying Math with Wacom**

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AT A GLANCE

Industry
Education

Usage Scenario
Classroom integration for math students

Challenges
Students encounter extra steps to make their work digital; teacher lacks visibility into each students' problem-solving thought process

Solution
- A class set of 20 Intuos tablets
- Virtual lessons using Pear Deck, a web-based learning application

Benefits
- Students are able to think more fluidly through math problems
- Students' workflow is simplified
- Real-time insight into students' progress
- Every learner is seen and celebrated within the classroom

> "I really believe this technology helps us connect with our students on a more personal level."

Stacey Roshan, Bullis School Director of Innovation & Educational Technology and author of "Tech with Heart"

Challenge

Using technology to hear from every voice in the classroom

Founded in 1930, Bullis School boasts 102 acres in Potomac, Maryland, just outside of Washington D.C. A bustling campus with more than 800 students, Bullis provides a wide variety of academics, arts, athletics and services with a staff of world-class faculty.
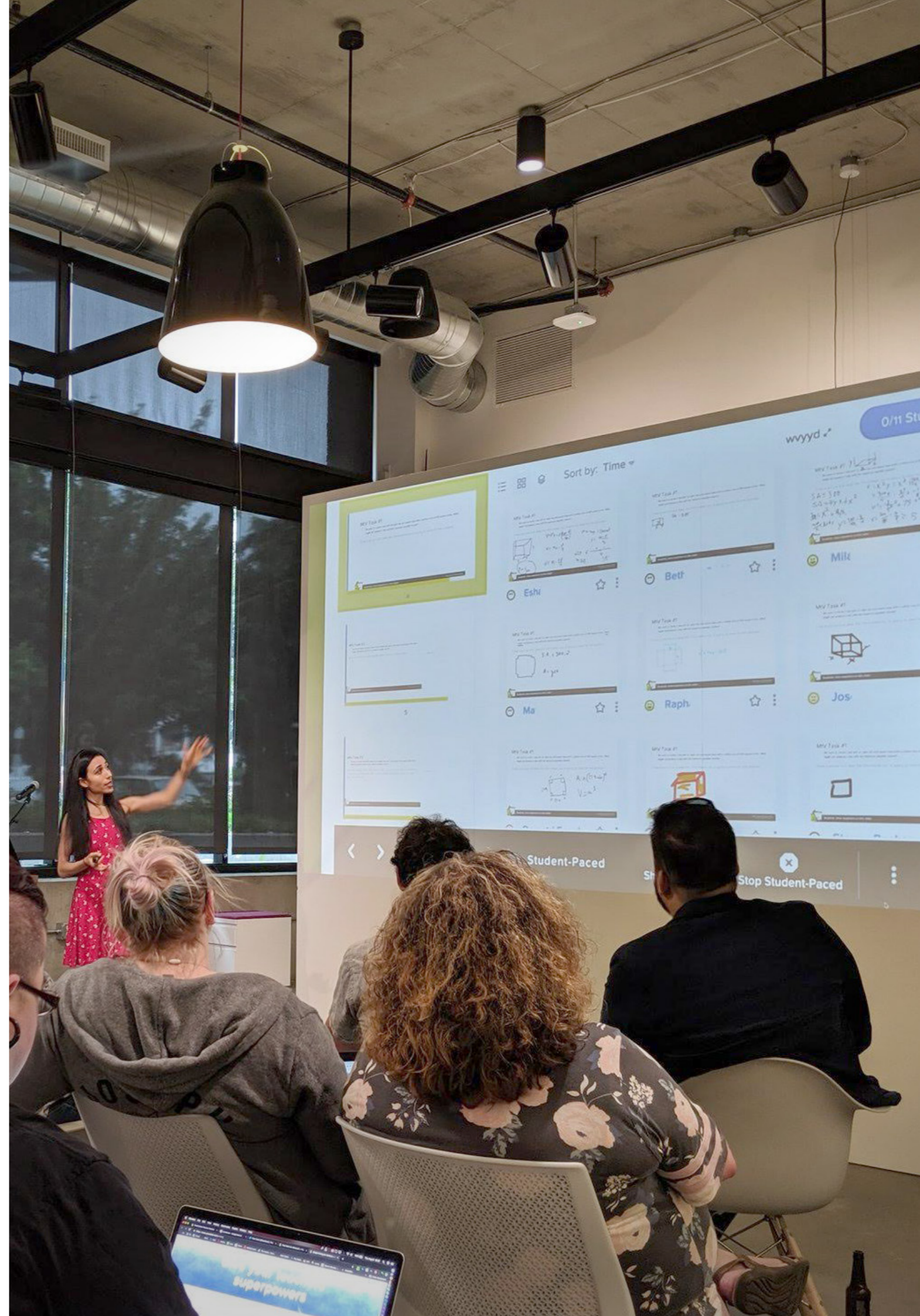
After spotting Wacom at a convention booth, Stacey Roshan, Bullis School math teacher and author of "Tech with Heart," discovered the solution for teaching students at all learning paces. Shortly after, Stacey acquired a class set of 20 Wacom Intuos tablets for her math students. "The math process isn't always completely linear; we needed to be able to think more fluidly on a page. When I got the class set, things started coming to life in terms of what was possible in showcasing all students' work. Getting the tablets into the hands of the students was when I realized there was a lot more opportunity there."

Solution

Writing with precision together in real-time

Prior to the Intuos class set, Stacey would start class with a warm-up discussion on the board. Students would write down their solution in their notebooks, Stacey would engage the class in a conversation and answer any questions, and students would turn that work in at the conclusion of the activity. However, this method did not allow Stacey to shine the spotlight on what every student in the room was thinking or for her to give on-the-spot, immediate feedback as students worked. Using the tablets, Stacey can watch her students solve a problem from start to finish, which means she can correct students' work in real-time and gain insight into each student's workflow. This also allows her to pinpoint the exact step at which the student made a mistake. Without the tablet, a finished problem is only presented in its final form regardless of it being correct or incorrect. "We needed more visibility and the opportunity to hand-write with precision. Writing it out – step by step – is very important for the students' thinking, so how do we really get at this solution process and see everyone work through it?" With the smooth, natural feel of the Intuos pen tablets paired with online learning applications, Stacey and her math students are able to work harmoniously as a class. "I'm a huge advocate for this type of technology. It brings in this very human element of how we see, celebrate and recognize the work of every learner in the classroom, when we have so many types of learners and processors. I use the information I get from watching their thought process to improve my teaching and their experience."

Plug-in-and-go

For Stacey and her students, the transition to a digital workflow was quick and seamless, and students were ready to embrace a new kind of learning. Stacey recalls, "The students got used to the tablets and their handwriting improved within the first month. In terms of productivity, we're not having to do extra steps to make something digital. I've provided my students with a solution that allows them to process in their own time and their own space. When I'm doing anything in class, they can see me write and talk in sync, helping them follow and understand my full thought-process both visually and auditorily. The tablets also encourage peer-to-peer learning and put the focus back on student work since I can display digital work on the classroom projector with ease."
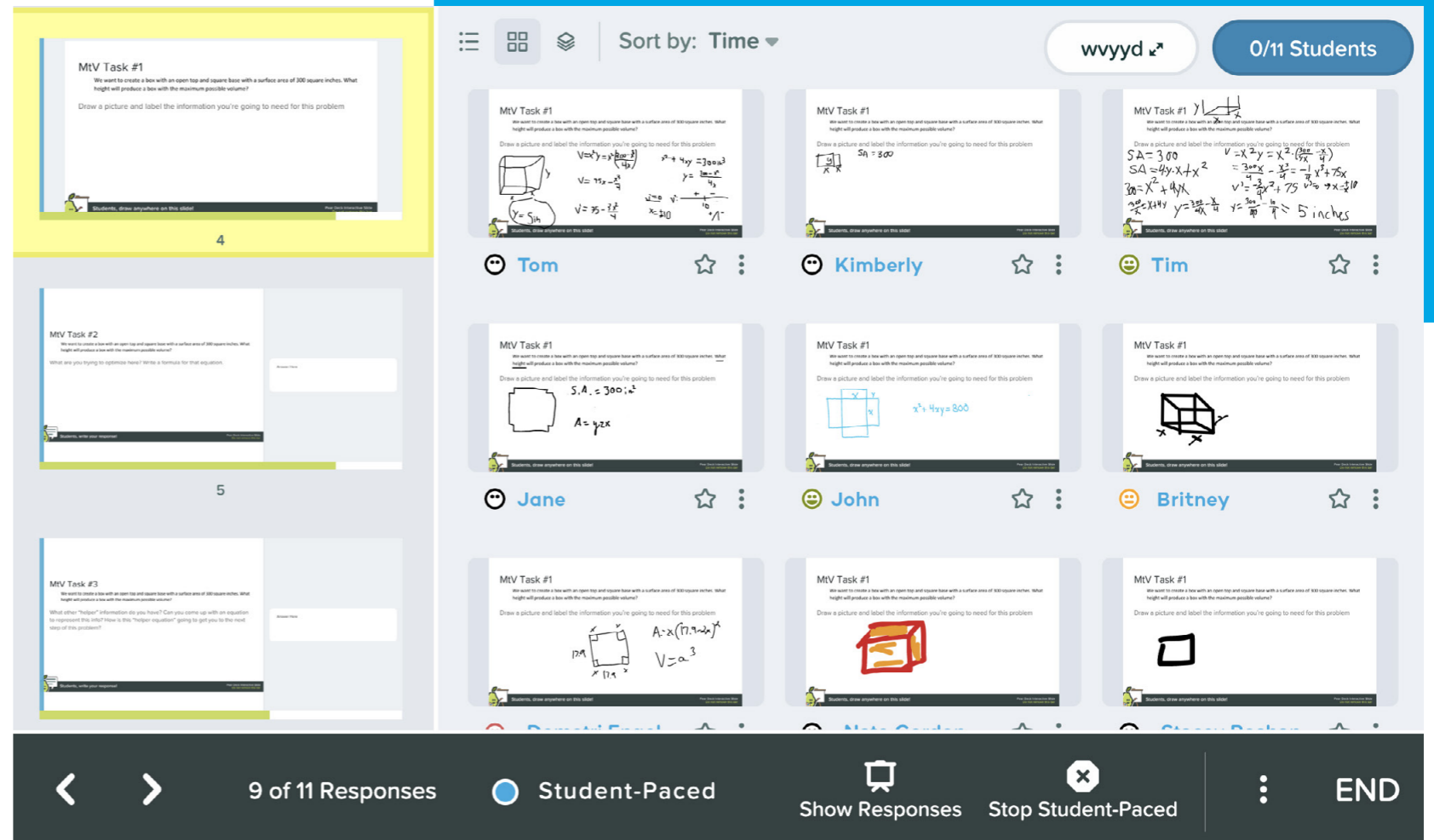
Outcome

Digital ink with a lasting impression

The students not only use their tablets for solving problems, but to communicate their ideas through individual videos. This added flexibility opens an array of opportunities with the tablets. "A big component of my class is having my students make instructional videos with their tablets where they write out solutions for a quiz or test review. There's so much that they learn by using their digital pens and verbalizing their thinking process. I really believe this technology helps us connect with our students on a more personal level. We're deepening relationships. By seeing and hearing how they're verbalizing their math thinking, we can gain real insight into each student's strengths and areas where they are still shaky. By following up with a student before they take a test or quiz, we can help students gain new levels of confidence in their solution process. Ensuring they are solid on understanding the why behind each step of the solution process is key."

The original tablets Stacey bought in 2013 have passed through the hands of several classes over the years, helping dozens of students improve their understanding of various math concepts. Stacey's class set of Intuos tablets are a testament to Wacom's durability and longevity. "With Wacom products, there's an upfront cost of getting a class set, but because they're built to last and have such a great life-span, we can continue using them for years – that's something that's really important for schools to consider." Plus, Wacom tablets are operating system-agnostic (including Chromebook use), and act as a mouse-replacement across education applications and learning platforms.

Wacom tablets broaden learning opportunities and encourage class participation with ink-enabled applications like Pear Deck.

For administrators looking to make the leap to digital ink, Stacey offers her insight. "Make sure that the tools paired with the Wacom tablets are really powerful and simple for both the student and the teacher. This is key for maximizing Wacom's capabilities and creating a successful digital classroom."