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Technology Supports Personalized Learning in K–12 Schools

Children learn at different paces and in different ways. Some schools use tech-driven, customized instruction to strengthen learning comprehension and retention.

by Erin Brereton

Erin Brereton has written about technology, business and other topics for more than 50 magazines, newspapers and online publications.

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In a Quest Academy class, sixth in ninth grade students might choose between watching a video on a school-provided Chromebook, listening to a podcast or reading an article to learn about a new concept. For group project work, they can access a teacher-provided playlist that integrates viewing selections.

The curriculum at the school in West Haven, Utah, is designed to provide students with adaptable, self-paced learning options, which differ by class.

"It isn't 'we're all going to get on this computer program,'" Principal Nicki Slaugh says. "We make sure we provide a variety of ways they can learn. Some are hands-on, and a lot offer a flipped-classroom approach, where our teachers record themselves doing a mini-lesson, versus standing in front of the room. You choose how you learn best."
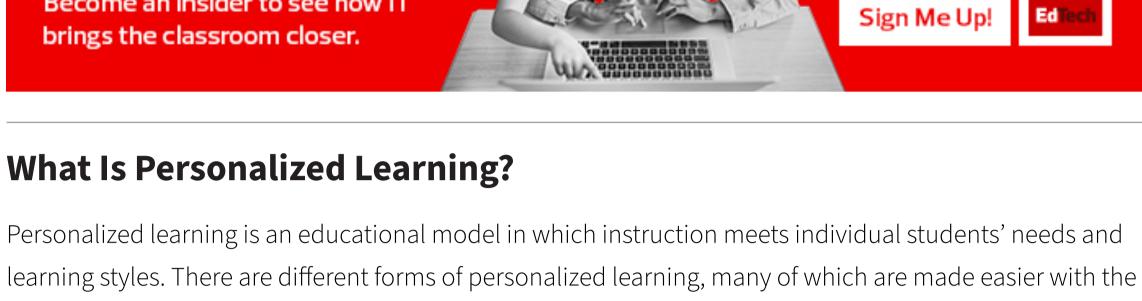
The recent prevalence of educational technology in schools has placed information about students' current and past performance trends at teachers' fingertips, enabling them to tailor instruction to students' needs and confirm they've mastered specific subjects.

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What Is Personalized Learning?

Personalized learning is an educational model in which instruction meets individual students' needs and learning styles. There are different forms of personalized learning, many of which are made easier with the introduction of educational technology. According to ISTE, "It is the purposeful design of blended instruction to combine face-to-face teaching, technology-assisted instruction and student-to-student collaboration to leverage each student's interests for deeper learning."

Personalized classroom experiences may remedy some of the learning loss that occurred during the COVID-19 pandemic. Results from the National Assessment of Educational Progress, administered in 2022, showed math scores for some grades had fallen to lows not seen in more than two decades. Across the board, more students scored below basic grade and subject proficiency levels.

Tech Solutions Help Teachers Pinpoint Proficiency Status

At Quest Academy, students' math instruction includes a customized version of an online credit course. The program features videos and high-level depth-of-knowledge questions to confirm they understand the material, potentially followed by students working out problems on whiteboard tables, Slaugh says.

A separate adaptive literacy platform rates students' reading and vocabulary comprehension. This helps teachers identify which students need further support through diagnostic profiles and assessment-based midyear and end-of-year benchmarking capabilities.

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"We're big on data," Slaugh says. "We have a variety of resources for instant feedback for formative assessment throughout class. Our teachers are constantly identifying where the kids are in the learning process and deciding what kids need more assistance on."

The personalized, data-centric approach aligns with a number of educational elements that parents prioritize. According to a survey from the Walton Family Foundation, Stand Together Trust and Tyton Partners commissioned, 47 percent of K–12 parents say one of their main goals for their child's education is that schools provide a learning environment that best matches their child's needs.

Personalized content and programming based on students' interests are the top elements parents value when considering alternative school options. Those are followed by more progressive and innovative learning strategies, such as performance-based assessment.

Students' Interests and Expertise Guide Class Projects

Tech solutions have helped Milton Hershey School, a private K–12 institution in Hershey, Pa., adjust its curriculum. The school's coding class was updated for students who have previous experience with the topic or plan to pursue a career in the field, says Rachael Mann, director of career and technical education.

"The teacher is able to have some of her more advanced students choose different topics to go a little bit deeper with coding principles," Mann says. "Some of them are doing app development, but they also do some work with educational robotics."

Frank Komykoski, who provides engineering instruction, has asked sophomores and juniors to design seemingly unnecessary inventions, from the brainstorming and prototyping phase to testing their creations.

> "Starting personalized learning at a young age allows these students to have a strong academic base, as well as the opportunity to understand how they learn best."
>
> Marissa Torchia, Kindergarten Teacher, New York City Public Schools

One student project involves ankle covers that would prevent your legs from getting wet. Another centers on adding mirrors to glasses to prevent people from sneaking up on you. "It's silly stuff" that promotes open thinking and lets kids incorporate things that interest them, Komykoski says.

"With personalized learning, the focus is on the process and the thought process behind it," he says. "Each student goes through and views that process a little differently. That's how you can really personalize your classroom."

Other educational formats at the school include instructional modules that students can access via their laptops, as well as peer and group learning.

Shannon Alvarez is helping MHS students memorize topics covered in her introductory coding course by having them create a Microsoft Flipgrid presentation. Students must touch on one of the four areas they learned about in the unit in the presentation.

Personalized Evaluations Target Knowledge as an End Goal

To check students' understanding of a subject, MHS teachers also distribute quizzes through the school's learning management system.

"In our robotics class, every time we get to the end of a section, they'll have a one- or two-question quiz to reinforce the concepts," Alvarez says. "We're able to see their results right away. Sometimes all of the students are struggling on a certain question, which enables us to revisit that topic and say, 'We recognize a lot of you didn't understand this; we're going to touch base on this one more time.'"

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After learning about electronics components in teacher Tony O'Neal's class, he administers a quiz with five to 10 questions. If students struggle, they can try again.

"I usually let my kids retake the test three times, and I keep the highest score," O'Neal says. "I just need them to know what the component is and how it works. I don't want to just shut them down after the first test and then they are behind constantly until the end."

Customized Class Time Can Help Multiple Grade Levels

While some of the more autonomous aspects of personalized learning may seem better suited for older students, the approach also benefits younger learners.

In Marissa Torchia's kindergarten class, students are split into groups based on their academic performance, which allows the New York City Public Schools teacher to tailor reading, writing and math instruction to meet each group's needs.

Students who might need hands-on work helpful for understanding math concepts, for example, will use manipulatives to solve problems.

Torchia says the approach can be particularly effective at her grade level because kindergarten is often a child's first exposure to a structured learning environment.

"Many students enter kindergarten with clean slates," she says. "Often, some fall behind because they do not learn the same way as others. Without the opportunity for personalized instruction, these students aren't able to catch up to their peers. Starting personalized learning at a young age allows these students to have a strong academic base, as well as the opportunity to understand how they learn best."

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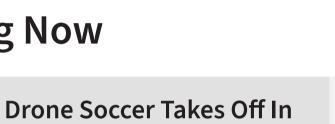
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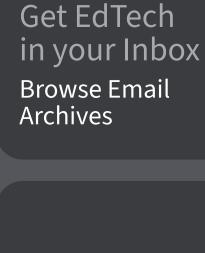
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