Digital Tools Aim to Personalize Literacy Instruction

By Benjamin Herold

From online news articles written at five different reading levels to algorithms that create personalized vocabulary lists, ed-tech tools are rapidly expanding the ways in which teachers can differentiate their literacy and reading instruction.

Experts say the new technologies have the potential to transform learning, one child at a time.

"The problem up to this point is that when we've designed curriculum, we've done it with a mythical 'average student' in mind, then tried to fix the curriculum after the fact to address the needs of particular children," said Bernadette Dwyer, a lecturer in literacy studies and education at Dublin City University, in Ireland, who has done research in both Europe and the United States.

"But digital tools can help us anticipate the needs of children upfront, particularly for struggling readers," said Dwyer, who is also a board member of the International Literacy Association.

To better understand the new landscape, Education Week spoke with researchers, industry officials, and a representative from Graphite, a Consumer Reports-style website with ratings and recommendations on ed-tech tools run by the nonprofit Common Sense Media.

Here's what they recommended:

1. Customize Texts to Each Student's Reading Level

Digital tools have made a well-established classroom literacy practice more efficient and powerful, said Heather Schugar, an associate professor of literacy at West Chester University in Pennsylvania.

"Up until a few years ago, the most dedicated of elementary teachers would send home plastic bags with books [written] on children's individualized reading levels," Schugar said. "Today,
that seems to be a practice of the past."

Instead, a growing number of teachers are using online products like Raz-Kids, which offers a wide variety of e-books written across the full range of reading levels, allowing teachers to easily assign each student a text written at the level that is just right for him or her. (Other tools take the inverse approach, adapting each individual text to a number of different reading levels.)

Both strategies are valuable, Schugar said, because research has long made clear that students make the most progress when they are reading in their "zone of proximal development"—the sweet spot that's neither too frustrating nor too easy.

One of the more popular such tools for older students is Newsela, a Web-based software program that provides daily news articles, each adapted to five different reading levels, in both English and Spanish.

A big benefit, said founder and CEO Matthew Gross, is that students of different skill levels can now share the experience of reading about the same topic, while also getting to read text that is appropriately difficult for them personally.

Other tools that take this approach across the K-12 grade span are Accelerated Reader and LightSail.

2. Allow Teachers to Target Specific Reading Skills

A solid grounding in research around effective literacy instruction is what often separates the good apps from the bad, believes Madeleine Heins Israelson, an assistant professor at the College of Saint Benedict and Saint John's University in Minnesota.

Earlier this year, Israelson published an article in the journal The Reading Teacher titled "The App Map." In the piece, she broke reading instruction down into its component parts, such as understanding letter sounds and building vocabulary, then urged teachers to consider digital tools that reflect the established wisdom about the best ways to build each skill in students.

An example: Rather than just looking for a "reading app," Israelson suggests, an early-years teacher might instead look for a tool that will help a subset of her students hone their ability to recognize common "sight words."

Then, the teacher might vet potential apps to make sure they're actually focused on what researchers say are the correct sight words. The teacher might also consider whether students will be expected to use the app on their own or with the whole class, and independently or with an adult. Finally, the teacher might gauge whether the tool's potential digital benefits, such as engaging interactive features, will outweigh their potential downsides, such as being distracting.

That same process can be applied to tools promoting early-literacy skills ranging from phonemic awareness (e.g., letter sounds) to comprehension (e.g., the ability to understand and summarize material, answer questions, and make predictions) to writing, Israelson writes.

Different students might need different tools, based on the specific reading skills they need to develop.
Examples of the hundreds of tools on the market for such skills include SpellingCity (for early learners), Lexia Reading Core5 (which targets the full range of foundational reading skills), and ThinkCERCA (which is focused on building "close reading" and writing skills in older students.)

3. Diagnose and Respond to Individual Students' Strengths and Weaknesses

Big educational publishers are in on the action, too, especially when it comes to using "adaptive" technologies that adjust based on individual students' abilities.

Take a company like Houghton Mifflin Harcourt, which recently acquired popular digital-reading-intervention software READ 180 as part of its purchase of Scholastic's ed-tech division.

Among other features, the software aims to expose students to many more words than they might otherwise encounter, then help them to understand the meaning of those words more deeply than they otherwise might have.

Here's how it works: After students choose topics they find interesting, the software provides texts written at a level that fits their sweet spot of difficulty. As the students use the software, it analyzes how they read and perform on subsequent vocabulary quizzes and exercises. From there, READ 180 seeks to identify which words each student understands and can read and spell, as well as how quickly the student can do each of those functions.

Based on the results of that analysis, the software will make sure that the words a student doesn't understand show up in future vocabulary exercises and reading passages given to that student. The reading level of that next text will also be recalibrated based on the results of the new analysis.

It's not just algorithms doing the work, stressed Margery Mayer, the executive vice president of Houghton Mifflin’s intervention-solutions group. The software also aims to help teachers differentiate their instruction by providing them with a constant stream of data about what students can and can't do, as well as by making recommendations for how to group students based on their specific strengths and needs.

"Empowering teachers with digital tools is a big direction where everyone is headed," Mayer said.

Different digital tools of this type allow for different roles for educators. Examples include Achieve 3000 (which also provides leveled texts) and i-Ready.

4. Encourage Teachers to Offer Customized Supports

Digital tools and interactive e-readers can also allow teachers to customize the reading experience for students—and make themselves an integral part of each student's reading process.

Take, for example, digital reading platforms such as Benchmark Universe. In addition to its library of 2,500 interactive e-books, the software includes annotation tools for students to take notes and highlight; digital "sticky notes" for teachers to leave prompts for individual students, groups, or the entire class; and options for teachers to modify the text in customized ways that could include embedding videos, introducing graphic organizers, and adding voiceover directly into the book.

Jeffrey Knutson, a senior manager for education content with Common Sense Media, said educators are particularly excited about those types of tools because they allow for customized, in-the-moment supports.

"Reading, and that relationship between words and the mind, is so personal," Knutson said. "I
think the digital tools that allow teachers to kind of insert themselves into that experience are really great—they allow for a level of scaffolding that's hard to reach [otherwise]."

Downsides can include **too many distractions that interrupt the reading flow for students.** It can also be extremely time-consuming for teachers to provide different videos, prompts, and notes for every student, even when done in a digital world. Other similar platforms include [Actively Learn, Curriculet](#), and Subtext.

### 5. Have Students Show What They've Learned in Different Ways

Digitally differentiated literacy and reading instruction isn't just about software, or even educators, targeting students in ways that are specific to their own needs and preferences.

It's also about providing students with digital tools that allow them to demonstrate their own learning in customized ways—through multimedia creation and storytelling, collaborative writing, and more.

That could mean features that allow students to record themselves reading aloud, so they and their teachers can then check how fluent they are.

Or tools like **BookBuilder**, which allow students to compose, edit, and share their own e-books.

Or even iMovie, Skype, and Google Docs—all popular consumer products (for creating and editing videos, video-based communication, and collaborative writing, respectively) that Dwyer of Dublin City University said can be powerful tools to get students actually demonstrating so-called 21st-century skills.

"The promise of technology ... is around promoting higher-order-thinking skills," Dwyer said. "I think it goes a lot deeper than just having texts on different reading levels."

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