

Closing the 30 million word gap

BY DENNIS PIERCE
February 22nd, 2016



To cancel the effects of poverty, school systems are extending literacy programs to the larger community

Mention Napa County, Calif., and what comes to mind for most people are rows of sun-splashed grapes—and well-tanned couples sipping wine under the shade of a vine-covered pergola.

But Napa has its share of poverty, too. More than half of the student population is Latino, and many of these students come from poor households where English isn't spoken.

“Most of our preschool kids who are native Spanish speakers come to school without anybody having read to them,” said Napa County Superintendent of Schools Barbara Nemko. “Most of the parents of those children are not even literate in Spanish, so they're not reading books of any kind.”

Nemko and her staff were aware of the “30 million word gap”: the research-backed idea that children who grow up in poverty come to school having heard 30 million fewer spoken words than their peers from middle-class or upper-class homes putting them at a sharp disadvantage in terms of their language skills.

This gap is even wider when students grow up in non-English speaking households. Nemko and her staff knew they had to do something dramatic to close it.

Five years ago, the Napa County Office of Education piloted the use of [Footsteps2Brilliance](#), a digital platform for building early literacy skills, with a small group of preschool students.

The product features interactive books that can “read themselves” to children in English or Spanish, Nemko said. As the words are being said aloud, they are highlighted in red, so children can learn to associate the written word with the sound they’re hearing. Children also can click on pictures within a story to see animations that bring it to life.

The preschoolers loved the program, Nemko said, and the results of the pilot were “phenomenal”: As the children consumed the digital books, assessment data showed a 250-percent increase in their English language skills.

“That’s almost unheard of,” she said, adding that students were learning “hundreds of new words a day” by using the system.

After this initial success, Napa County partnered with a private, nonprofit foundation called Napa Learns to make the program available to *all* of the county’s parents with preschool-age children at no cost. The books can be read on any device, including smart phones and tablets—and they are helping to immerse young children in the English language before they come to school.

“Almost every family now has at least one smart device,” Nemko said. “We thought that if we could help parents download [the software] and show them how to use it, then we could quadruple the amount of time it was being used.” Children are using it at home, she explained, or even while they’re in line with a parent at the grocery store.

“We’re seeing phenomenal use,” she noted. “It’s helping us close the achievement gap before students get to kindergarten.”

‘Learning begins at day one’

Napa County isn’t alone in focusing on children who aren’t even old enough for school. In Weslaco, Texas, Superintendent Ruben Alejandro has launched an early literacy program called “Zero to Three Weslaco Reads,” which provides access to an online library of digital books called [myON](#) for the entire Weslaco community. Houston has a similar initiative.

These are just a few examples of how a growing number of K-12 leaders are realizing that, to overcome the effects of poverty on student achievement, school districts have to begin reaching children before they even arrive at school.

“We need to reimagine what education looks like, because we need it to follow the science,” said Dana Suskind, head of the Pediatric Cochlear Implantation Program at the University of Chicago, during a [radio podcast](#) for Freakonomics. “Education doesn’t start on the first day of school. It starts on the first day of life.”

Suskind continued: “We have made little progress on what we call the achievement gap. And I truly believe that until we address education as it should be, in a scientific and biological way—because learning begins at day one—then we’re never going to move the needle. We’re remedial rather than preventative. And that’s the larger issue.”

Suskind is the director of the [Thirty Million Words Initiative](#) and author of *Thirty Million Words: Building a Child’s Brain*. Her work refers to the groundbreaking research by Hart and Risley in the mid-90s, who found that children living in poverty have been exposed to about 13 million words spoken in the home by their fourth birthday. But children growing up in homes with parents who are professionals—doctors, lawyers, teachers, engineers—have heard an average of 45 million spoken words by age four.

That means children from poor homes have had more than 30 million fewer opportunities to learn vocabulary and become accustomed to grammar, sentence structure, and the other aspects of language that are so important.

The children who heard more words were better prepared for learning when they started school, Hart and Risley found—and these same children, when followed into third grade, had larger vocabularies, were stronger readers, and got higher test scores.

What’s more, this gap typically widens as students continue their education, said Martha Burns, an adjunct associate professor at Northwestern University, during a recent [webinar](#) on the effects of poverty on school success.

“By the time the students are in about the sixth or seventh grade, they have a five-and-a-half year difference in their oral language skills compared with children who started with high language skills,” Burns said. “The reason is that when you come to school and your language skills aren’t as good, a lot of what the teacher says—and 80 percent of classroom instruction in elementary school is a teacher talking and students listening—is going to go right over your head.”

These children aren’t going to know the vocabulary, she explained; they aren’t going to be confident in what the teacher is saying. “They’ll probably tune out, or they’ll just miss a lot of the content.”

Even more alarming is that the number of U.S. students living in poverty continues to climb.

In 2000, half the students in four states were eligible for free or reduced-price lunches. Just 11 years later, more than half of public school students were poor in 17 states. Student poverty is the dominant reality in three of the biggest states—California, Texas, and Florida—and is nearly the majority in New York, Michigan, and Illinois.

It’s this rising poverty that is most responsible for stagnant reading scores on tests such as the National Assessment of Educational Progress, Burns said.

The most recent NAEP scores showed that just 36 percent of U.S. fourth graders read at or above proficiency. That’s virtually unchanged from 2013, when 35 percent of fourth graders were proficient in reading. Put another way, nearly two-thirds of all U.S. students struggle with reading—and for low-income students, that number exceeds 80 percent.

Audio books aren’t ‘cheating’

Suskind’s 30 Million Words Initiative has developed programs that encourage parents to communicate verbally with their children and immerse them in language-rich activities at a young age. These boil down to getting parents to follow what she calls the “three Ts”: Tune in to what your child is doing; talk more to your child using lots of descriptive words; and take turns with your child as you engage in conversation.

But the challenge goes beyond just speaking to young children.

“There is a distinction between speaking in sophisticated ways to your children and just talking to them,” said William Weil, CEO of [Tales2Go](#). “Even in the most sophisticated homes, parents don’t say to their children, ‘Observe, child’—they say, ‘Look over there.’ The words that kids need to hear are actually in books.”

A recent [Pew survey](#) found that just half of U.S. parents read to their children every day, and that figure drops to 33 percent for parents with a high school diploma or less. Weil said many parents aren’t reading to their children because they aren’t fluent in English themselves, or because they work multiple jobs and don’t have the time. But “if you can’t read to your children often enough, someone has to,” he said.

That’s where Weil’s company comes in. Tales2Go streams audio books to children’s computers or mobile devices wherever they are, as long as they have an internet connection. When schools buy a site license to the service, their students can have unlimited, simultaneous access to any of the 8,000 fiction, nonfiction, and Spanish language titles in the company’s collection.

Proficient reading is predicated on having a large vocabulary, Weil said—and “it’s through repeated exposure to spoken, sophisticated words that you build vocabulary.” Listening to audio books can increase the frequency that kids are getting this exposure, both in the classroom and at home—which is why the Los Angeles Unified School District and Florida’s Orange and Broward counties are using Tales2Go as part of their literacy efforts.

For many people, “it doesn’t make sense” to use audio books as a key literacy tool, Weil acknowledged: “I know there are parents who think audio books are cheating, and I know there are educators who think, well, that’s just lazy.”

But the Common Core standards “raise up listening to be a skill that is equivalent to reading and writing and speaking,” he said. In response, more elementary schools are adding a listening component to their station rotations, where students can listen to fluently spoken language.

This is “driving vocabulary acquisition and attention,” Weil said. “It also exposes children to more complex texts than they can decode on their own.”

More than just literacy skills

Poverty affects more than just literacy skills, Burns said during the webinar: Researcher Kimberly Noble in 2005 published a [study](#) showing how it also affects cognitive functions such as working memory and attention. And last year, she published [new research](#) suggesting a strong correlation between family income and how a child’s brain develops.

A big reason for this is something called “toxic stress”: stress that is continual, where the child doesn’t have a break from it. “What happens is that children are learning to respond to stress more than they’re learning to read or write or do math problems,” Burns said.

Positive experiences, in which children are exposed to an environment that is rich in opportunities for exploration and social play, can help offset these effects—and so can caring relationships with adults.

“For children who come from stressful homes, if school is a safe haven and a place where they trust, that alone has been shown to compensate for some degree of negative experiences,” Burns said.

Reading software also can help—especially if it’s designed to target not just literacy skills, but also the cognitive skills that are affected by poverty, such as activities that build memory and attention.

That's the idea behind Fast ForWord and Reading Assistant, two reading programs from [Scientific Learning Corp.](#) "Our software was explicitly designed to cross-train both those foundational language and reading skills with cognitive skills such as working memory, attention, processing, and the ability to sequence effectively," said Senior Vice President Steve Gardner.

For example, one of the software's activities is an exercise in which students listen to target syllables and have to identify when these syllables change.

"We acoustically modify the sound to slow it down, and then we move it closer to natural speech as they move through the exercise," Gardner said. "Students are working on phonological fluency and sound contrast, but they have to hold the speech sound in their memory, so they're developing their working memory at the same time—and they are working on their attention skills as well."

Well-designed neuroscience-based technologies "can build the underlying capacities that are reduced in some children of poverty or with learning issues, so students can remember what you said or pay attention longer," Burns said. "Students come in with a fighting chance, and they're going to be much more capable of learning."

Whatever measures school leaders take to close the 30 million word gap, understanding the full nature of the challenge is an important first step.

"We blame schools and teachers for why we can't close the achievement gap, but nobody has recognized until recently that the gap exists *before* children get to kindergarten," Napa County's Nemko said. And the earlier school systems can intervene, the better their chances of giving *all* children a chance to succeed.

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