



Can We Disrupt Poverty by Changing How Poor Parents Talk to Their Kids?

Emily Badger; Dec 17, 2013

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PROVIDENCE, R.I.—Small children in the most talkative homes hear, on average, 20,000 to 30,000 words in a day. That number may sound implausible. But all of the overheard conversations, nursery rhymes, and admonishments add up.

And, for upper-income children, they add up much faster than they do in homes deep in poverty. This creates a socioeconomic "word gap" between low- and high-income children.

This gap exists in the difference between reading and watching TV. It's in the difference between handing a toddler a bowl of cereal, and using that cereal as a ploy to talk about mouths and tummies. The gap widens because a low-income parent, who works two jobs, isn't around as much to talk to her children, or has less energy when she is home. And it grows because a child whose parents cannot afford a stuffed elephant may never have much reason to talk about elephants at all.

By the time poor children are 3, researchers believe they have heard on average about **30 million fewer words** than children the same age from better-off families, setting back their vocabulary, cognitive development, and future reading skills before the first day of school. This disadvantage is "already almost irreversible," says Kenneth Wong, a professor of education policy at Brown University.

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In Providence, many of these children fill up the public-school system: 87 percent of students district-wide here are eligible for free or reduced-price lunch. Come January, the city plans to launch an unconventional intervention with a few dozen low-income children—then hundreds more—in a bid to alter their life prospects by changing how their parents talk to them.

"Unfortunately, Providence takes turns, it seems, with Detroit and New Orleans to see who's going to lead in childhood poverty," says John Kelly, CEO of Meeting Street, which runs an Early Head Start home-visitation program in town that will be central to the initiative, called Providence Talks. "That doesn't create always healthy, happy home environments."

Providence won a [\\$5 million grant](#) over three years from Bloomberg Philanthropies to develop the initiative in partnership with community-service providers, researchers at Brown, and a Colorado foundation that's figured out how to build a pedometer for words.

The device, a 2-ounce specialized recorder about the size of a deck of cards, maps the intensity of communication between parents and children. The infants and toddlers in Providence Talks will wear it twice a month, tucked into a custom-made vest, for 12 to 16 hours at a time. The recorder then plugs into a computer, where software automatically converts the audio files into charts that can be used by Meeting Street to coach the parents on how and when they might speak to their children more often.

The project has attracted national attention for both the Bloomberg money and the curious technology. Providence Talks is also novel for its high stakes: Mayor Angel Taveras wants to scale the initiative citywide, while privacy advocates [raise concerns](#) about the program's intrusion into residents' lives. Bloomberg's not-for-profit gave Providence this money on the gamble that it could validate a chain reaction that other cities could follow. Close the word gap, advocates say, and you might close the achievement gap and maybe even disrupt the cycle of poverty.



For years, we didn't notice this inequality of vocabulary—or the extent of it—because it was a painstaking thing to measure before the advent of smarter recorders and software. A [seminal study](#), published in 1995 by two child psychologists at the University of Kansas, Betty Hart and Todd Risley, manually identified the effect.

They spent two-and-a-half years studying 42 Kansas City families of varying incomes with children who were, at the start of the study, 7 to 9 months old. For an hour each month, Hart and Risley recorded and observed everything that took place in a home around a child. They ultimately spent four years transcribing and analyzing 1,300 hours of observation. Their results showed that children in families on welfare heard half as many words per hour as children of working-class parents, and a third as many as children of professional parents.

Over time, the children also came to mirror their parents in vocabulary and interactions. "When we listened to the children," Hart and Risley wrote, "we seemed to hear their parents speaking."

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Their sample size was admittedly and necessarily small. But the effect was so startling and consistent across time that the researchers hoped that the 30-million-word gap would change some part of early childhood education.

Ten years ago, the technology still didn't exist to easily repeat what they had done. But the nonprofit [LENA Research Foundation](#) in Colorado began trying to train computer algorithms to parse the minute verbal differences that Hart and Risley had transcribed by hand. Over several years, LENA's speech-recognition engineers developed software that could tell the difference between a child speaking and a parent, between

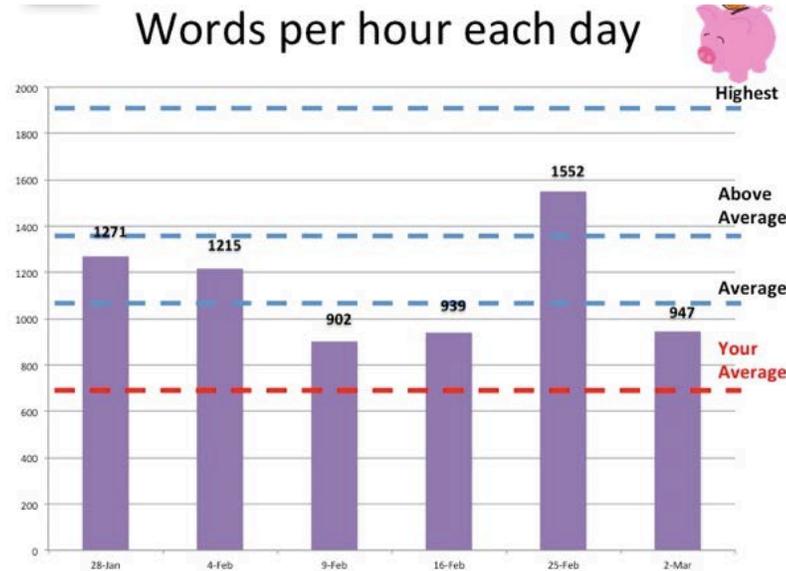
a live voice and one on television. Simultaneously, the foundation was working with a recording device that could, for the first time, record for 16 hours straight.

Today, no human has to listen to the audio captured by LENA's recorder, a "digital language processor." The software analyzes it in a few hours and tabulates the total number of adult words a child hears in a day (not counting TV), or the number of give-and-takes between child and parent.

Some 200 universities and hospitals now use the technology for clinical or research projects that often have nothing to do with poverty. The device is also used by linguistic departments, in autism and hearing-impaired research, to measure interactions with the elderly, or between teachers and students in a classroom. Dana Suskind, a University of Chicago researcher whose work inspired Providence's initiative, has been using LENA for a similar, smaller-scale project on Chicago's South Side.

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Examples of feedback reports that parents received in the Chicago study.

Suskind's evidence suggests that Providence Talks could work. Adults and children in Chicago increased their word counts and the frequency of their interactions with each other over the course of several months. Her research has also given parents periodic feedback from the LENA recordings, alongside a home-visiting curriculum to coach them along the way on the importance of vocabulary and the many subtle

opportunities—while playing, eating, singing, cleaning—when children absorb it.

Suskind is eager to see this strategy, backed by more research, help more than a handful of families. Imagine, for example, if aggregated data from a project like this could help cities make the case for more library funding in neighborhoods where children do not hear as many words.

"We need this to succeed. We want this to succeed," Suskind says of Providence Talks, whose advisory board she has joined. "If this can be shown to be effective on a larger scale, it would be a great thing."



Kissy Puello suspects that her 2-year-old, Noraliz, hears maybe 500 vocabulary words a day. The 36-year-old mother of three lives in Providence's West End neighborhood, where her Early Head Start home visitor

was making a regular visit earlier this month. Noraliz already talks a lot. "That's her personality, the way she is," Puello says—so there's every reason to believe she's already taking those cues from somewhere. But next month, Meeting Street will begin giving Puello more targeted guidance on how to talk about emotions, or how to repeat Noraliz's own words back to her, or how to try out new vocabulary through finger plays.

"When we listened to the children, we seemed to hear their parents speaking."

Providence Talks will be unlike Suskind's project, not just for its ambition to do this with hundreds of families, but also because the LENA Foundation has never heard of a local government playing a role in an idea like this before.

City Hall has the resources to yield the widest impact, approaching the kind Suskind has in mind. Mayor Taveras ultimately wants to identify and invite families to participate from the moment they go through a state-mandated newborn screening in a Providence hospital. In the city, 2,700 babies are born each year.

But the involvement of government also prompts a level of alarm for civil libertarians that would not exist if this were simply a Brown research study with an identical design. "There's always a concern when we walk in with technology into lower-income families, immigration populations, minority populations, and we say 'This will help you,' " says Hillary Davis, a policy associate with the Rhode Island ACLU, "and we don't necessarily recognize the threat to their own safety or liberty that can accidentally come along with that."

Providence has built in several privacy precautions that other users of the LENA technology don't always take. (The ACLU, which has been talking to the city, would like those in writing.) The recorder itself has no "play" button, should the device get lost. And parents, who volunteer to participate, have the option of purging a recording before it's processed if they change their minds about participating in the program. After the software (held at Meeting Street) does analyze the files, it also automatically deletes them, Meeting Street says. Skeptics wary of even well-intentioned technology may not be reassured by these precautions.

But Andrea Riquetti-Salvatore, the director of Early Head Start at Meeting Street, figures that the technology has been easier to introduce because she and the mayor are using it with their children, too.

Since November, Puello and about a dozen families have been testing the recorders at home. At this point, on the eve of the full rollout, the feedback is mundane but valuable: One 4-month-old spit up on the vest the first time she wore it. (Now she's wearing a bib). Puello didn't realize she was supposed to keep the recorder on even while Noraliz was sleeping.

Baby Noraliz has also not been entirely fooled by the device hidden in her LENA vest. "She notices it attached to her," Puello says. "I explained to her she has to do that for school. So she doesn't touch it, she doesn't take it off."

The idea that a 2-year-old has to "do this for school" is a play on her desire to seem like her older siblings, the one who goes to Early Head Start, and the other who's in the sixth grade. But it's also a literal statement. Maybe this *will* help her in school one day.