Online tool enables public to track 'tip-of-the tongue' states, speech errors

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We've all been there. Occasionally, in the midst of a conversation, our mind flashes blank, and it's impossible to conjure the word for a thing, place or person. We'll gesture with our hands and feel like we're on the verge of remembering. But the word won't come.

It's a predicament language researchers dub the "tip of the tongue" state.

"These states are interesting for a few reasons," said Michael Vitevitch, professor of psychology at the University of Kansas and investigator with KU's Life Span Institute. "They tell us how the language system is built—for example, that meaning is stored in memory separately from the sound of the words—and they show that memories can be transient—you used the word last week, you can't retrieve the word right now, a few hours later the word comes to you. Older adults often complain they experience these states more often, so studying tip-of-the-tongue states helps us distinguish what happens during normal aging from what happens when certain diseases might be present, such as Alzheimer's disease."

But tip-of-the-tongue states and other speech errors are vexing for researchers to document and analyze—they can't be replicated easily in a lab setting.

Now, Vitevitch and colleagues from the Department of Psychology and programmers from KU Information Technology have produced a web-based tool allowing everyday people to engage in "citizen science" by

recording speech errors. In doing so, they hope to crowd-source the most complete database of speech errors ever created and forge new insight into the acquisition, production and perception of language.

The public-at-large can access the tool at http://spedi.ku.edu. Researchers hope users will enter their own and others' experiences of tip-of-the-tongue states, as well as slips of the tongue, slips of the ear (where people misperceive words) and malapropisms. A description of the website recently was published in the open access journal *Frontiers in Psychology*. The "provisional" copy is online now

"You can think of speech errors as instances in which the speech system temporarily 'breaks down,'" Vitevitch said. "Like most things, the speech system will break at its weakest points, so by collecting many speech errors and looking for recurring patterns, we can better find the weak points in the system and determine how the system is built. For example, when you switch sounds in adjacent words, you'll switch the first sound of one word with the first sound of the other word—but not the first sound of one word with the last sound of the other word. That pattern suggests the speech system has a plan that tracks the order of sounds in current and about to be spoken words."

Vitevitch said that many malapropisms—or, using incorrect words in place of similar ones—have entered into popular culture.

"The term malapropism comes from Mrs. Malaprop, a character in a play called 'The Rivals' by Sheridan, who would inadvertently use the wrong word in a sentence," he said. "Often the words sound similar, but the meanings are very different. These errors do occur in real life, but they are often used for comic effect in plays and TV shows. A modern day, real-life example is from former Chicago mayor Richard Daley, who said 'Alcoholics Unanimous' instead of 'Alcoholics Anonymous.'"

Another language error of interest to Vitevitch and his co-investigators are slips of the ear, also known as "Mondegreens."

"Mondegreens refer to things that are said correctly, but they are not heard correctly," he said. "The term was coined by Sylvia Wright, who wrote that she had heard part of a song "...and laid him on the green..." as "...and Lady Mondegreen..." Entire webpages have cropped up devoted to misheard song lyrics, some of which are pretty funny."

The public-at-large also is encouraged to submit "Spoonersims," errors in which sounds from adjacent words are switched. The term refers to the Reverend William Archibald Spooner, a professor at Oxford famous for making such errors—often with comic effect, such as "you have hissed all my mystery lectures" instead of "you have missed all my history lectures."

Vitevitch said he developed an interest in speech errors from his own experiences with them.

"Like everyone else I'd laugh when I made or heard someone else make a speech error," he said. "I'd also experience tip-of-the-tongue states just like everyone else. After the initial laugh—or feeling of annoyance in the case of tip of the tongue states—I'd wonder why those words were problematic, and not the other words that I managed to say correctly."

While Vitevitch found speech errors to be an interesting, real-life example of a subject he studied in the lab, the lack of availability of speech-error collections made them difficult to use for research.

"As a graduate student, I asked one of the giants of psycholinguistics if she'd send me the speech-error collection she had so I could analyze it," he said. "She responded that each error was written on a 3-by-5 index card and that the cards were stored in several shoeboxes. She'd have to

have her administrative assistant stand in front of a photocopy machine for several days to work through them all."

Vitevitch hopes the new website solves problems with storing errors and making them easy for other researchers to use.

"We think the data will be useful to linguists, psychologists who study language, speech-language pathologists, audiologists and computer scientists and engineers working on speech recognition in computers," he said. "We also hope educators at the K-12 level as well as instructors at the college and university level will use the data in class exercises or build homework assignments around it. Finally, by making the website available for everyone to use and contribute to we hope to get more people interested in doing science and asking questions about how things work."

Provided by University of Kansas