South America's Aymara put future behind them

By Nathan Bierma
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When the Aymara people in South America want to forget something, they don't want to put it behind them -- they want to put it ahead of them. The Aymara language have the same word for "front" and "past," and another word that means both "future" and "behind." What's more, the Aymara use hand gestures to match -- they point behind themselves when talking about the future and in front of themselves when talking about the past, according to a fascinating new study in the journal Cognitive Science.

But the study, titled "With the Future Behind Them," found that younger speakers of Aymara who also have learned Spanish are beginning to use more conventional gestures.

Cognitive scientists study the human brain to learn about our mental processes and perceptions. Researchers analyzed a series of interviews they conducted with the Aymara in the Andes Mountains in northern Chile, to study how speakers' hands move.

As one Aymara speaker says "nayra mara," meaning "in times past" (the literal translation is "time in front"), he gestures by extending his left arm forward from his shoulder, as though throwing a ball.

When another speaker says "quipa timpun," meaning "future time" (literally, "time behind"), he swings his right arm backward, his pointing his thumb over his shoulder.

"Finding a gesture that puts the future in the back is really interesting," says Susan Goldin-Meadow, head of the Goldin-Meadow Laboratory at the University of Chicago, which specializes in gesture research. "It's counterintuitive, and no one's ever reported it before."

The Cognitive Science article concludes that the Aymara have a "radically different metaphoric mapping of time."

"It's not just about words," said researcher Rafael Nunez in a telephone interview. Nunez, director of the Embodied Cognition Laboratory at the University of California at San Diego, co-wrote the article with linguist Eve Sweetser of the University of California at Berkeley.

"The question is, what's going on in people's minds as they speak? What's the psychological reality? This is what we need to address as cognitive scientists," Nunez said. "In this case, gesture studies is the tool that helped us address this question."

Nunez concludes the Aymara have an unusual mental picture of their relationship to time. Most people, including English speakers, tend to picture themselves as traveling along a path through time. So when we say "the week ahead," we picture the week as lying on a path in front of us. With this mental picture, it's natural to think of the past as behind us -- as the ground we've traveled.

The Aymara, on the other hand, seem to picture themselves as standing and surveying a landscape. You can't see what lies in back of you; you only know what you can see in front of you. Since the past is known and the future is unknown, it is natural to the Aymara to picture the future in

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back of them, where they can't see it, Nunez says.

Although the Aymara language itself is not in danger of dying out, Nunez says this mental map might be in danger.

The study in Cognitive Science shows that in northern Chile, bilingual youth who speak both Aymara and Spanish (which they learned in Chilean schools) seem to have a different picture of the past and future.

These younger Aymara speakers still use the Aymara words "nayra" and "qhipa," but the majority of them use different gestures while saying the words: they tend to point ahead to signify the future and gesture in a direction behind themselves to signify the past. "Fluency in Spanish," the authors conclude, "relates to past-behind [and] future-front gestures."

"We can preserve a language, with all the formal properties of language -- grammar and phonology and so on -- but it doesn't necessarily mean that the conceptual world that those languages serve will be maintained," Nunez says.

Endings: An article in the Vancouver-based Asian Pacific Post last month, covering studies of possible 15th Century contact between the Chinese and Native Americans, ended with a startling claim about the Cherokee.

The reporter (who was not identified) ended the article by saying that the Cherokee "were so backward that they did not even have a language of their own."

In fact, the Cherokee had a thriving culture and language for centuries before European settlement, though its writing system was invented more recently.

"I bet it arose from the . . . all-too-common assumption that no written language [means] no language at all," wrote University of Michigan linguist Sally Thomason at Language Log (www.languagelog.org), in response to the Asian Pacific Post article. "Beliefs like these may be especially offensive when applied to Cherokee, given the illustrious nature and history of its writing system, a syllabary that is believed to have been invented by Chief Sequoyah."

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