

Understanding Infant Language Learning

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LouAnn Gerken, a UA psychology and linguistics professor, has spent years studying learning among infants. She recently conducted an experiment with findings that were in direct contrast to the well-established "sponge" theory. (Photo credit: Carin Araujo)

(PhysOrg.com) -- University of Arizona professor LouAnn Gerken has earned a grant to study the accuracy of a fairly new theory that explains how infants acquire knowledge.

Two prevailing schools of thought explain how infants acquire language: one arguing that babies soak up [information](#) like sponges, while the other maintains that humans, born with innate [linguistics](#) leanings, are rational learners.

The two theories have been in opposition for decades, but a third has surfaced in recent years that shows promise for providing a more accurate description of how babies learn, said LouAnn Gerken, a

University of Arizona psychology and linguistics professor.

As somewhat of a hybrid of the two, the third theory is that learning has as much to do with nature as it does the environment. And after an "accidental" discovery in her laboratory, Gerken began to seriously consider the hybrid idea.

Gerken has earned a three-year National Science Foundation grant of nearly \$400,000 for a research project to evaluate the plausibility of the most recent theory, termed the "grammar-seeking sponge" perspective.

It was while crunching numbers for an earlier experiment more than one year ago that Gerken unearthed evidence that the grammar-seeking theory could better explain how her young subjects were learning.

During tests, she and her collaborators measure the level of interest or attraction infants exhibit toward information in patterns that either fit or did not fit previously presented information.

In her evaluation, Gerken found that the children ages 4 to 9 months required a "surprisingly low" number of examples to detect a pattern.

"I was looking across the data, and it started to seem like you could give babies too much information. We found they were learning with fewer examples," said Gerken, who directs the Tweety [Language Development Lab](#) at the UA.

"This observation makes us think they are more like scientists than sponges," she added.

While the "sponge" theory - popularized during the 1940s and 1950s - suggests that young people need a tremendous amount of information or a large number of examples to learn, "innate domain theory" suggests

they are "highly sensitive" to their surrounding environments and require very little information.

The grammar-seeking theory suggests that young children need not be immersed in a tremendous amount of information. When it comes to examples while learning, there appears to be a golden number: three.

That is to say that youth appear to learn best when they receive three different examples, Gerken said. And that was what she found in the experiment that launched the current NSF-funded project.

"It's a relatively new development with a small group of researchers, but I think it is really promising," said Gerken, whose research focuses on language acquisition.

"What I think we're finding is that humans have the ability to look at information in a rational or logical way, but they get the information from environments," Gerken said.

"The new approach affords humans more flexibility than where everything is innate, but allows for the reasoning capacity," she added.

But the theory has not yet be broadly tested so if the research results are positive, they may carry implications for education, Gerken said. Either way, the findings will contribute to what is already known about human learning.

"Even though we are working with [babies](#), what we are finding may be general principals about how humans learn," she said.

"It could be that we have limited memory and it is easy to reason from only three examples," she added, "or it could be more interesting in that most of the learning we do is from interacting with other humans."

Provided by University of Arizona

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