

W I N T E R 2 0 1 4

Professor Sarah Creel's

Language Acquisition & Sound Recognition Lab

Preschoolers Say the Darndest Things

•You're pretty good at this game.
Do you play any musical instruments at home?

"Baseball."

•Can you sing "Twinkle Twinkle Little Star"?

"No, I need an instrument"

•Do you like to play sports?

"What are sports?"

•Do you have any brothers or sisters?

"I have brothers."

How many brothers?

"I don't know."

•While listening to different melodies on the computer game:

"Is there going to be food one?"



Back row: Annie O'Brien, Petra Rupert, Mika Oen, Kit Albrecht, Conor Frye, Dr. Sarah Creel, Nicolle Paullada
Front row: Emilie Seubert, Rebecca Roseman, Rachel Kim, Jessica Chen, Melody Chen

Winter Newsletter

Who We Are

We are the Language Acquisition and Sound Recognition Lab, or LASR. Our home base is UC San Diego, where Professor Sarah Creel, Principal Investigator to this research, is a faculty member of the Cognitive Science Department. Along with our lab manager, Emilie Seubert, graduate student Conor Frye, post-bachelor researcher Nicolle Paullada, as well as an excellent crew of undergraduates from UCSD, we are investigating several aspects of children's development of language and recognition of various sounds. We recruit preschool-aged children from the local San Diego community to participate in our short and fun computer tasks. We appreciate the great help from our preschool directors and are always grateful for the teachers' hospitality. All of the tasks, or games, that we play with children are fun and short (about 15 minutes), and award a little prize as a thank you for participating. We'd like to give a warm thank you to all the directors, teachers, parents, and children for helping us with our research, and hope to keep making great discoveries in this field!



UC San Diego



Toys in our lab at UCSD

How do children recognize accent-variants of newly-learned words?

How do children recognize newly-learned words that are pronounced in an unfamiliar way? This might occur due to a mispronunciation, or due to an unfamiliar accent. Many children grow up in an environment with multiple languages, dialects, or accents. For instance, a Boston speaker may say “yard” in a way that other American listeners hear as “yahd.” This creates a unique challenge for children as they learn to attach meanings to words. For this study, we were interested in how and whether preschoolers would recognize alternative pronunciations of words they had just recently learned. We tested this by first teaching the children new words and then measured how accurately and rapidly they recognized these words when they were mispronounced.

In each experiment, preschoolers watched images on a computer screen while their eye-movements were tracked. In the game, the children were exposed to two novel words: the names of two types of fictional cartoon creatures. To familiarize each child to the new words, each animated creature came on screen while a recorded passage named the creature twice (e.g. A geef! That’s a geef!) Later, the two creatures appeared side by side and the child was asked to “Point to the (creature name).” Sometimes, the name of the creature was pronounced as it had been during the learning phase, but other times, the word was mispronounced (e.g. *giff* instead of *geef*.) In addition to the novel words, the children were also tested on their recognition of certain unaccented familiar words (i.e. *bridge*, *fish*, *keys*) as well as their accented variants (i.e. *breedge*, *feesh*, *kizz*). The children showed high accuracy for the familiar words, even when they were accented. They were highly accurate at recognizing the unaccented novel words but were slightly less accurate at recognizing the *accented* novel words. These results show that kids are sensitive to the similarity between the two accented forms but that newly-learned words are highly sensitive to accent-like changes: children have difficulty recognizing a word that is changed by a single vowel feature. However, when the kids *learned* the novel words in *two* accents, eye-movement data showed that the additional accent caused the preschoolers to take longer in identifying the name of the creature and their performance dropped.

Creel, S. C. *Impossible to ignore, Accented Word Learning. In press at Language Learning and Development.*

Summary of Recent Publications

How well do children recognize talkers?

How do we develop the ability to understand speech regardless of who is talking, yet still recognize different voices? A 7-month-old infant may recognize the word “dog” when Mom says “dog” but does not recognize the word when spoken by a stranger’s voice. Adults, however, are able to distinguish and understand speech with *sound variability* (for example, differences between the word “peach” and “beach”) as well as *talker variability* (differences between Mom saying “beach” and Aunt Gertrude saying “beach.”) We strove to find out whether children are as skilled as adults at recognizing talkers when each talker’s speech pattern or voice had a different trait. For example, could the children recognize the difference between two female college-aged California native talkers? A mother and a daughter speaking? How about when a boy and girl are speaking?

In our study, preschool-aged child participants played a computer game in which voices were linked to two distinct cartoon characters. Each talker-pair either consisted of the voices of two female college-aged Californians, one mother and her daughter, or one boy and one girl. The children were then asked by each talker, “Where am I? Point at me!” The child would then point to the picture of the talker on the screen to identify it. This way, we could measure the child’s accuracy in recognizing talkers.

We had adults play the same computer game and we found that children were far less accurate than adults at distinguishing between the two female college-aged California native talkers, even when each talker’s voice had a different stress pattern and intonation. This result implies that children gradually develop the ability to recognize different talkers, becoming more and more skilled as they reach adulthood. However, children were highly accurate when the speakers’ voices varied in age or gender, implying that the large acoustic differences between talkers of different ages and different genders facilitated the act of distinguishing between the two talkers. The results of the experiments performed suggest that pre-school aged children are still learning the complexities of language that allow adults to accurately distinguish between different talkers.

Creel, S. C., & Jimenez, (2012). *Differences in Talker Recognition by Preschoolers and Adults. Journal of Experiment Child Psychology, 113, 487-509*

