

Infants draw on past to interpret present, understand other people's behavior

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(PhysOrg.com) -- The old real estate maxim "location, location, location" also plays a role in how infants learn to understand the ambiguous actions and behavior of other people.

University of Washington psychologists have learned that 10-month-old infants use their prior exposure and understanding of familiar actions by a person to unravel novel actions. However, this ability is limited by the location in which the new action is performed.

"Infants' understanding of and exposure to familiar actions can boost their understanding of ambiguous action sequences. Their ability to draw on the past to interpret the present represents an important advance in their developing understanding of other people's behavior," said Jessica Sommerville, a UW assistant professor of psychology who is also affiliated with the university's Institute for Learning and Brain Sciences.

Although the research was conducted on infants, she believes the findings apply across all ages.

"Providing advance information about the ultimate goal or objective of what you are trying to teach before delivering the actual content helps people learn. College instructors and school teachers are often instructed to highlight the goal of a lecture, course or lesson in advance to facilitate learning. Our work demonstrates that this phenomenon is present in infancy. Advance information about an individual's goals helps infants understand and learn from another person's actions within the first year

of life."

UW researchers conducted two experiments to test how well infants can use prior information.

In the first, 48 typically developing infants took part in a two-phase experiment. During the first phase, infants received information about which of two objects a research assistant desired. Across five trials, infants consistently saw the assistant reach for, grasp and pick up one of two plastic toys (a green frog or a red fish) while saying "Wow!" For the second phase, the infants were randomly divided into same- and different-room conditions.

Half the babies stayed in the same room, but the setup was slightly different. This time the frog and fish each sat out of reach of the assistant on top of distinctly different colored cloths. Infants watched as the assistant used the cloth supporting the toy that she had previous desired to retrieve the target toy. Infants' visual attention to these events was measured, and after infants' attention declined they participated in novel test trials. The test trials varied. Some of them featured a change in the toy the assistant went after while others featured a change in the cloth that was used by the assistant. The procedure was the same for the different-room group, except these infant receive the second phase in another room.

Prior research suggests that 10-month-old infants do not spontaneously recognize the meaning behind the cloth-pulling sequence. They apparently don't understand that a person pulls the cloth to retrieve the desired out-of-reach toy. The UW researchers wanted to know if the infants could use information from the first phase to identify the assistant's intention in the second phase. They used infants' visual attention to the novel test events to gauge infants' understanding of the cloth-pulling sequence. Infants in the same-room condition showed

heightened attention to a change in the toy that the assistant retrieved rather than a change in the cloth she used. This suggests that the infants understood that the assistant pulled the cloth in order to obtain her desired toy, and were surprised when her intention changed, according to Sommerville.

In contrast, infants in the different-room condition did not distinguish between the two test events.

The second experiment was virtually identical to the first, except half of the infants were taken out of the testing room for 30 seconds after the first phase, matching the time it took the different-room group to switch rooms in the first experiment. Then they returned to the same room. This time both groups of infants looked significantly longer at the change in the toy the assistant pulled with the cloth.

"Our findings suggest that infants use prior information about a person's goals and desires to understand novel or ambiguous action. But they also suggest that infants may be limited in their ability to generalize this information to new contexts at 10 months of age," said Sommerville.

"Alternately, infants may be able to generalize information across a change in context, but they may be more reluctant to generalize expectations about others' behavior than are older children or adults."

She said the research also has practical applications that parents could use when they want to teach their children something.

"Our work suggests that children's learning may benefit if they are provided with information about the desired end result of a game or activity before starting it. For example, if a parent wants to show a child how to operate a jack-in-the-box it might be helpful to show the desired outcome (the jack popped out of the box), and then demonstrate the step that are necessary to achieve that result."

Co-author of the findings, which are published on-line in the journal *Developmental Science*, is Catharyn Crane, a UW psychology doctoral student.

Provided by University of Washington

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