

Preschoolers can outsmart college students at figuring out gizmos

March 6 2014, by Yasmin Anwar

Preschoolers can be smarter than college students at figuring out how unusual toys and gadgets work because they're more flexible and less biased than adults in their ideas about cause and effect, according to new research from the University of California, Berkeley, and the University of Edinburgh.

The findings suggest that technology and innovation can benefit from the exploratory learning and probabilistic reasoning skills that come naturally to young [children](#), many of whom are learning to use smartphones even before they can tie their shoelaces. The findings also build upon the researchers' efforts to use children's cognitive smarts to teach machines to learn in more human ways.

"As far as we know, this is the first study examining whether children can learn abstract cause and effect relationships, abstract principles about the logical form of causal relationships, and comparing them to adults," said UC Berkeley developmental psychologist Alison Gopnik, senior author of the paper published online in the journal, *Cognition*.

Using a game they call "Blickets," the researchers looked at how more than 106 preschoolers (aged 4 and 5) and 170 college undergrads figured out a gizmo that works in an unusual way. They did this by placing clay shapes (cubes, pyramids, cylinders, balls, etc), on a red-topped box to see which shapes – individually or in combination – could light up the box and play music. The shapes that activated the machine were called "blickets"

What separated the young players from the adult players was their response to changing evidence in the blicket demonstrations. For example, unusual combinations could make the machine go, and children caught on to that rule, while the adults tended to focus on which individual blocks activated the machine even in the face of changing evidence.

"The kids got it. They figured out that the machine might work in this unusual way and so that you should put both blocks on together. But the best and brightest students acted as if the machine would always follow the common and obvious rule, even when we showed them that it might work differently," wrote Gopnik in her forthcoming column in *The Wall Street Journal*.

Overall, the youngsters were more likely to entertain unlikely possibilities to figure out "blicketness." This confirmed the researchers' hypothesis that preschoolers and kindergartners instinctively follow Bayesian logic, a statistical model that draws inferences by calculating the probability of possible outcomes.

"One big question, looking forward, is what makes children more flexible learners—are they just free from the preconceptions that adults have, or are they fundamentally more flexible or exploratory in how they see the world?" said Christopher Lucas, lead author of the paper and a lecturer at the University of Edinburgh. "Regardless, children have a lot to teach us about learning."

Provided by University of California - Berkeley

Citation: Preschoolers can outsmart college students at figuring out gizmos (2014, March 6) retrieved 23 April 2024 from <https://medicalxpress.com/news/2014-03-preschoolers-outsmart-college-students-figuring.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.