

Young children would rather explore than get rewards, study finds

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Kids love to explore. Credit: Pezibear from Pixabay

Young children will pass up rewards they know they can collect to explore other options, a new study suggests.

Researchers found that when [adults](#) and 4- to 5-year-old children played a game where certain choices earned them rewards, both adults and children quickly learned what choices would give them the biggest returns.

But while adults then used that knowledge to maximize their prizes, children continued exploring the other options, just to see if their value may have changed.

"Exploration seems to be a major driving force during [early childhood](#)—even outweighing the importance of immediate rewards," said Vladimir Sloutsky, co-author of the study and professor of psychology at The Ohio State University.

"We believe it is because young children need to explore to help them understand how the world works."

And despite what adults may think, kids' search for new discoveries is anything but random. Results showed children approached exploration systematically, to make sure they didn't miss anything.

"When adults think of kids exploring, they may think of them as running around aimlessly, opening drawers and cupboards, picking up random objects," Sloutsky said

"But it turns out their exploration isn't random at all."

Sloutsky conducted the study with Nathaniel Blanco, a postdoctoral researcher in psychology at Ohio State. Their results were published online recently in the journal *Developmental Science*.

The researchers conducted two studies. One study involved 32 4-year-olds and 34 adults.

On a [computer screen](#), participants were shown four alien creatures. When participants clicked on each creature, they were given a set number of virtual candies.

One creature was clearly the best, giving 10 candies, while the others gave 1, 2 and 3 candies, respectively. Those amounts never changed for each creature over the course of the experiment.

The goal was to earn as much [candy](#) as possible over 100 trials. (The children could turn their virtual candies into real stickers at the end of the experiment.)

As expected, the adults learned quickly which creature gave the most candies and selected that creature 86 percent of the time. But children selected the highest-reward creature only 43 percent of the time.

And it wasn't because the children didn't realize which choice would reap them the largest reward. In a memory test after the study, 20 of 22 children correctly identified which creature delivered the most candy.

"The children were not motivated by achieving the maximum reward to the extent that adults were," Blanco said. "Instead, children seemed primarily motivated by the information gained through exploring."

But what was interesting was that the children didn't just click randomly on the creatures, Sloutsky said.

When they didn't click on the option with the highest reward, they were most likely to go through the other choices systematically, to ensure they never went too long without testing each [individual choice](#).

"The longer they didn't check a particular option, the less certain they were on its value and the more they wanted to check it again," he said.

In a second study, the game was similar but the value of three of the four choices was visible—only one was hidden. The option that was hidden was randomly determined in each trial, so it changed nearly every time. But the values of all four choices never changed, even when it was the hidden one.

Like in the first experiment, the 37 adults chose the best option on almost every trial, 94 percent of the time. That was much more than the 36 4- and 5-year-old children, who selected the highest-value option only 40 percent of the time.

When the hidden option was the highest-value option, adults chose it 84 percent of the time, but otherwise they almost never selected it (2 percent of the time).

Children chose the hidden option about 40 percent of the time—and it didn't matter if it was the highest value one or not.

"The majority of the children were attracted to the uncertainty of the hidden option. They wanted to explore that choice," Sloutsky said.

However, there were some individual differences in children, he noted. A few children, for example, acted much like adults and nearly always chose the highest-value option. In the second experiment, a few children almost always avoided the hidden option.

These variations may have to do with different levels of cognitive maturation in children, he said.

But it appears that all children go through a phase where systematic exploration is one of their main goals.

"Even though we knew that [children](#) like to run around and investigate

things, we're now learning that there is a lot of regularity to their behavior," Sloutsky said.

"Children's seemingly [erratic behavior](#) at this age appears to be largely molded by a drive to stockpile information," added Blanco.

More information: Nathaniel J. Blanco et al, Systematic Exploration and Uncertainty Dominate Young Children's Choices, *Developmental Science* (2020). [DOI: 10.1111/desc.13026](https://doi.org/10.1111/desc.13026)

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