

# Study suggests short-term memory can be impacted by expectations

April 6 2023, by Bob Yirka

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People misremember events within just seconds, often re-shaping their memories to fit their expectations. Credit: Kelly Sikkema, Unsplash, CC0 ([creativecommons.org/publicdomain/zero/1.0/](https://creativecommons.org/publicdomain/zero/1.0/))

A trio of psychologists, two from the University of Amsterdam and a

third from the University of Sussex, has found via experimentation, that short-term memory may not be as reliable as it seems. In their study, reported in *PLOS ONE*, Marte Otten, Yair Pinto and Anil Seth, conducted short-term memory experiments with volunteers.

Prior research has shown that long-term memories are far less accurate than people believe them to be. In this new effort, the research team has found that sometimes [short-term memory](#) may not be accurate, either. They came to this conclusion after conducting four experiments with the assistance of hundreds of [volunteers](#)—in all of the experiments, volunteers viewed letters in circular groups on a screen and tried to identify certain letters afterward.

To make things more challenging, the researchers reversed the orientation of some of the letters. Groups of letters were shown briefly, sometimes for just a quarter of a second, followed by a gap of three seconds, whereupon a box would appear showing where one of the letters had been. That was followed by a different set of letters. The volunteers were asked to report which letter from the first group shown to them had been in the position shown in the box. Each volunteer was also told in advance that some letters might be flipped. Also, each of the volunteers rated their degree of [confidence](#) in getting the right letter immediately after each test.

The researchers found the volunteers did fairly well in remembering the correct letters when they were oriented normally, but their performance dropped dramatically when a letter was reversed—[accuracy](#) rates dropped to approximately 40%. Accuracy was also found to worsen as the time between seeing the letters and responding grew. The researchers also found that as accuracy dropped, confidence in giving [correct answers](#) did not.

The research team suggests that accuracy dropped because of a

mismatch between reality and expectations. People are not generally accustomed to seeing a letter flipped; thus, their mind flips it back to normal, either when they are seeing it originally or in the [memory](#) of it. This would also explain why their confidence remained strong.

**More information:** Marte Otten et al, Seeing  $\mathcal{O}$ , remembering C: Illusions in short-term memory, *PLOS ONE* (2023). [DOI: 10.1371/journal.pone.0283257](#)

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