

Forgot where you parked the car? Research suggests memory is a game of all or nothing

June 8 2020



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You emerge from the supermarket, struggling under the weight of the extra wine and chocolate biscuits you've bought to get through lockdown, and then... you draw a total blank... where did you park the car?

New research by psychologists at the University of York has looked at how these irritating and highly-relatable moments of amnesia come about, and asks: when we forget is the [memory](#) entirely lost or has it instead become fuzzier over time?

The [online study](#), involving more than 400 participants aged 18-35, reveals that memories for specific locations are either totally forgotten or, if they are remembered, it's with as much precision as when they were first learnt.

Co-author of the study, Dr. Aidan Horner from the Department of Psychology at the University of York, said: "Our study set out to discover what kind of [information](#) is lost when forgetting occurs and we show that forgetting involves losses in memory accessibility with no changes in memory precision.

"The question of how we forget is an important one. Rather than being something purely negative, forgetting may actually be beneficial to the decision making process. Our brains need to be able to discard distracting or unnecessary information so we can prioritize core information that helps to guide decision making."

The researchers asked participants to learn the locations of words on a circle. They were then tested by being shown the word and asked to move a marker to its location on the circle, analogous to walking to where you think you parked the car.

In order to discover whether precision fades over time, they tested groups of participants at different time intervals ranging from 10 minutes to four days after they had learnt the information.

The researchers found that while participants who were tested later had forgotten a significant proportion of word-location associations, the ones

they did remember were recalled with the same precision (i.e. they were able to pinpoint exact locations) as the groups tested earlier.

The researchers also looked at whether allowing participants to extract a pattern by clustering words on the same theme in one location would aid memory. When a pattern was present, they found that participants remembered more word-location associations (accessibility went up), but the precision with which things were remembered went down.

Dr. Horner added "We found that when participants were able to learn the locations of words via a pattern, there was a trade-off between accessibility and precision. What you gain in number of word-location associations remembered, you lose in the precision with which you remember them.

"For example, if you parked your car in roughly the same spot every day, you'd be more likely to remember where you parked it, but perhaps be less able to remember precisely where you parked it that specific day—you'd remember the rough, but not the precise, [location](#)."

More information: Berens, S.C., Richards, B.A. & Horner, A.J. Dissociating memory accessibility and precision in forgetting. *Nat Hum Behav* (2020). doi.org/10.1038/s41562-020-0888-8

Provided by University of York

Citation: Forgot where you parked the car? Research suggests memory is a game of all or nothing (2020, June 8) retrieved 20 April 2024 from <https://medicalxpress.com/news/2020-06-forgot-car-memory-game.html>

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