

In "working memory." This is a kind of memory that we use to retain and manipulate information for a limited period of time, until the task is completed.



Many types! Like reading. When you read, you make note of each letter to form units of words or syllables ; keeping each syllable in working memory until you reach its end. This way, you know what word you're reading. You do the same for each word in a sentence; keeping each word in working memory so that you can make sense of the meaning of the sentence

Look, we also use working memory doing math. You remember the numbers in working memory, to manipulate and transform them according to the operation you're doing.

$$\begin{array}{r}
 10 \\
 - 3.2 \\
 + 70.02 \\
 - 5.93 \\
 - 28.89 \\
 \hline
 ?
 \end{array}$$

We also use working memory in our daily lives, like when remembering a set of steps applied to the same or even new items. For instance, when making this recipe: first, I mix these ingredients, I add the rest, and pour my mixture into the baking tray. I do all this without looking at the recipe because I can remember it. Even if I spill some sugar, I can go fetch the dustpan and clean up my mess, and afterwards continue where I left off. In fact, because most of our actions are chronologically ordered, we use our working memory to remember the steps needed to complete our tasks.



Oh okay, so I can put this recipe away—I don't want to spill anything on it, especially since there's barely any room on the table.

No no, I need it.

But I thought it was in your working memory?

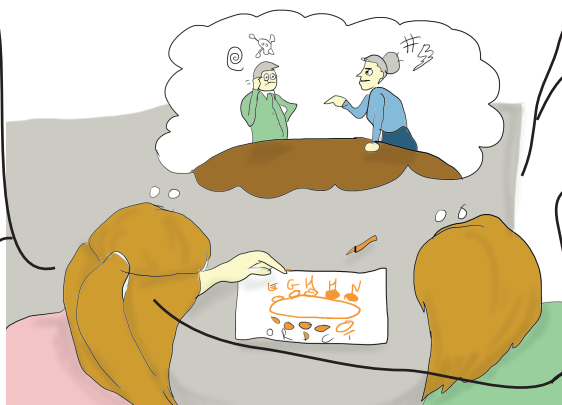


The capacity of our working memory is limited. You can only hold a small number of items in it (between 5 to 9).

When remembering a few items that do not need to be manipulated, these items are temporarily stored in the areas of the brain involved in sensory information, i.e. what we see or hear.

But if these items in working memory need to be manipulated, then regions in the frontal part of your brain will also be involved.

Speaking of working memory, Nico, you didn't use it much when planning the seating arrangement Nico. Let's have a look at it again. See, you put uncle Gerard and grandma next to each other. You know that they will discuss DIY projects and debate about which material is the best... As usual, they will unlikely agree with each other, and you know how it ends, right?



Oh no, I didn't pay attention to that. I also didn't my working memory...? Why didn't I use my working memory??

Your working memory allows you to search and retrieve information from memory, allowing you to remember past events to make appropriate choices and plan for the future... like when you make these great cake decorations.

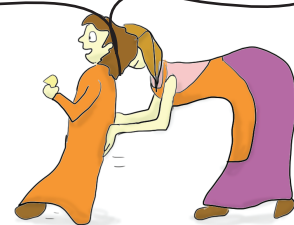
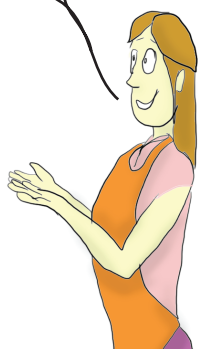
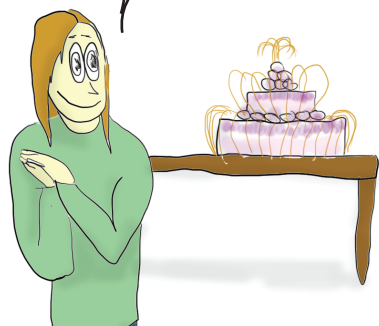
Do you like it? Or is it too much? Wait, is creativity influenced by working memory?

Of course, creating is taking elements that you already know apart, and putting them back together (by manipulating them) in a different way. We manipulate and retain tons of information in working memory.

So if he has such a good working memory, he should go do the shopping...!

Maya are you jealous? You know, working memory changes with age! Babies can only keep 1 to 2 items in memory, but as they get older, the number does slightly increase. You have yet to reach maximum potential! Although, bear in mind, memory gets worse with age.

But for now, get moving to the supermarket, or we will run out of time.



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Main references:

- Diamond, A., and Ling, D.S. (2016). Conclusions about interventions, programs, and approaches for improving executive functions that appear justified and those that, despite much hype, do not. *Developmental Cognitive Neuroscience*

