THE PSYCHOLOGY OF MEMORY
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INTRODUCTION

We think of memory as a mysterious force in our lives. We often don’t choose what we remember; our brain chooses for us. We give into the waves of time that sweep away facts and details.

But the truth is, while the brain is extremely complex and we don’t know everything, we do know some things about memory. We know enough to increase the chances of someone retaining information if they consume information in the best way.

You can use this knowledge, too, to design courses with the mechanics of memory in mind.
THE THREE STAGES OF MEMORY

**Encoding** is the process of receiving and processing information. It turns the stimuli of the outside world into information that we can understand. When you first read a new fact and think, “Oh, that’s interesting,” your brain is engaging with that information and working on processing that fact with your knowledge of the world. That’s encoding.

**Storage** is the stage in which information becomes a record in our brain. This is when your brain has processed the information enough for you to take that information to the next stage of memory. Sometimes it will only be stored for a short time, or never get properly stored. The next section deals with the different types of storage.

**Retrieval** is the process of taking information out of memory storage to use. Sometimes if the information is really old, it will take more time to retrieve. When you’re thinking “I know that fact! It’s on the tip of my tongue!” and finally recall it after a few moments, that’s retrieval in action. There are ways retrieval can improve with pneumonic devices and memory strategy.
THREE MAIN FORMS OF MEMORY STORAGE

**Sensory Memory** is an unconscious, involuntary visual memory. It’s responsible for certain sensory phenomena, such as when moving lights leave “light trails”. Sensory assists our brain in having enough information to process into memory storage.

**Short-term memory** only holds a few items at once and lasts only up to 30 seconds. If you want to test your short-term memory, have someone read to you a list of ten words and see how many you can repeat back at the end of the list. Short-term memory is also called working memory, since it’s the part of your memory that is actively working as you go about your day. Stuff in short term memory can be moved to long-term memory through various processes, which we will go over in the next section.

**Long-term memory** has a huge capacity. It contains anything that ever made it past working memory into your brain. It’s like a gigantic filing cabinet, even if it’s a poorly organized filing cabinet at times. It’s from this filing cabinet that we retrieve information. Later, we’ll go over how you can help learners organize their “files” and practice finding them so that they can retrieve information better.
CONVERTING SHORT-TERM MEMORY TO LONG-TERM MEMORY

The process of converting short-term memory to long-term memory is called “consolidation”. Consolidation generally refers to a merging, so you can think of memory consolidation as a new memory merging with your brain. Scientists aren’t sure about how the entire process works, but we know about many factors that contribute to consolidation.

- Researchers believe sleep plays an active role in stabilizing memory’s place in long-term storage. During REM, the brain may review the day and do important work in organizing the brain’s filing cabinet. This makes sense, since students seem to perform better in school when getting enough sleep.
- The passage of time is necessary for stabilization of memory.
- Practicing “re-consolidation” may be necessary to strengthen long-term memory and help it last for many years. This involves retrieving the memory and consolidating it over and over through self-reflection or use. Think about it – some of your strongest memories are likely things you retrieve on a daily basis, such as your best friend’s phone number or your phone password.
WAYS TO IMPROVE CONSOLIDATION AND RETRIEVAL IN LEARNERS

There are many ways to incorporate your understanding of the science of memory into more effective courses. Some of these are strategies you may already use, but hopefully you will be able to see them in a new light and use them more strategically with your new information on how memory works.

The way you use these strategies can also depend on the topic at hand. If it's information that employees will think about in their day to day lives -- such as how to use a software they use almost daily -- then quizzes might not be necessary. If it's information like “how to behave in a fire drill” regular exercises might be beneficial, because it's information they don't need until they need it.

- Practice retrieval of information through different kinds of learning tools
- Create pneumonic devices for complex processes – such as PASS for the steps of using a fire extinguisher.
- Try handing out job aides employees can reference until they remember all the details themselves
- Place quizzes throughout the module to reinforce new information memories
- Gamification for increased engagement and repetition of information – Try memory games with virtual flash cards
- Refresher courses at increasing distances until memories are hard-wired into long-term storage
- Microlearning, especially on important topics that are not naturally retrieved on a daily basis (safety protocols are a good candidate for microlearning)
- Repeat facts referenced earlier in the course multiple times and tie it into the new information later in the course
- Repeat information in new ways. For example, if information was in an infographic the first time, show it again later in the course within a video
- Teach about the importance of sleep and make work-life balance an important goal at your company
Understanding memory is just one part of creating more effective training for your company. Everything that goes into your training affects the outcome – from the platform to the design. Reach out to find out more about taking your training to the next level.

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