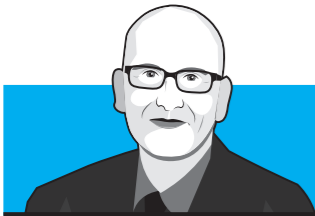


Learning and Memory

Understanding Willingham's Simple Model of the Mind

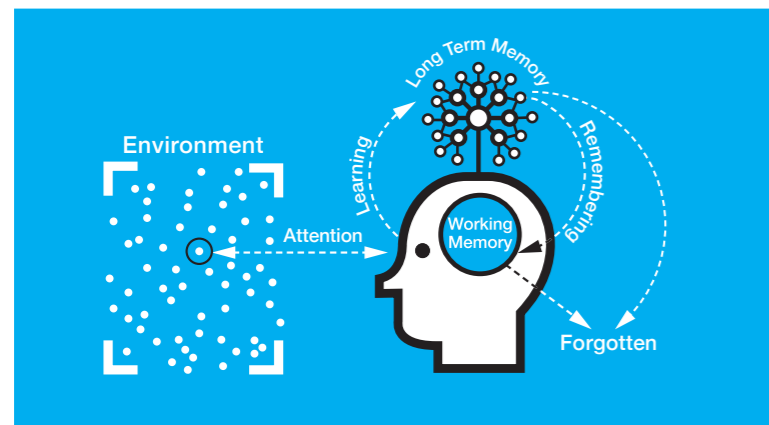


Daniel T. Willingham

“Understanding a bit about how thinking happens will help you understand what makes thinking hard. That will in turn help you understand how to make thinking easier for your students.”

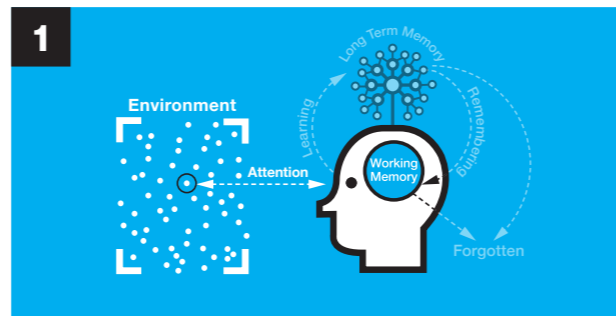
THE SIMPLE MODEL OF THE MIND

Daniel Willingham's 'Simple Model of the Mind' stands out as the most effective and practical tool for illustrating the learning process. This diagram vividly depicts how learning unfolds (and sheds light on why it sometimes falters) in straightforward terms accessible to educators. Crafted by Oliver Caviglioli, this graphic proves invaluable for teachers grappling with the mystery of why their otherwise stellar lessons may not yield the expected learning outcomes.



'SIMPLE MODEL OF THE MIND' AS INTERPRETED BY OLIVER CAVIGLIOLI

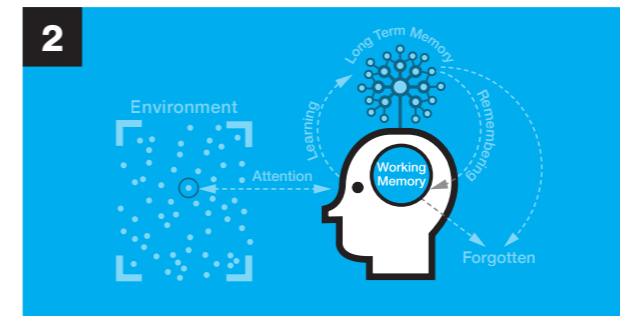
According to Willingham, working memory (our conscious awareness) holds current thoughts and perceptions (“I can smell my wife’s delicious cooking...” “I can see my cat basking in the sunlight”). Long-term memory, akin to a vast filing system, stores networks of factual knowledge, lying dormant until needed. Crucially, learning occurs through alterations in long-term memory, spurred only by active student engagement in thinking. Such cognitive activity strengthens neural pathways, facilitating the transfer and retention of knowledge in long-term memory. ‘Teaching One-Pagers’ provides concise summaries covering the model’s five core domains, along with effective strategies for addressing its cognitive challenges. Adjacent to this discussion is a detailed exploration of each key aspect of Willingham’s ‘Simple Model of the Mind’, offering further clarity and guidance.



SECURING ATTENTION

Have you got students' cognitive attention?

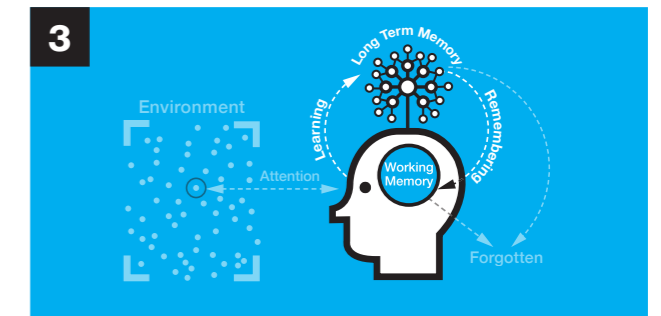
Educator and author Peps Mccrea asserts, “Students remember what they focus on.” When all students are actively engaged with your explanations and actively processing new information, the likelihood of learning occurring increases. However, like adults, students’ minds can wander towards distractions. Rather than concentrating on their learning, students may become sidetracked by unrelated thoughts. Having the skills, resources, and routines to swiftly regain students’ attention is essential for sustaining their cognitive engagement consistently in the classroom.



WORKING MEMORY

Are you making it manageable for students?

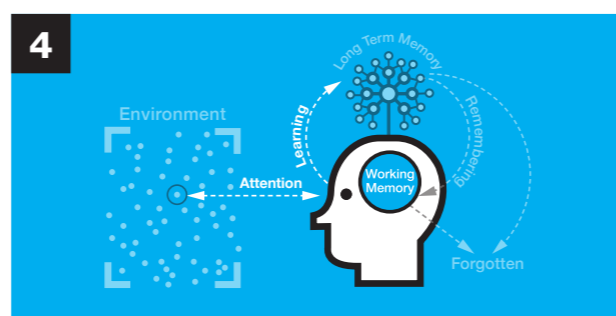
Working memory is the part of our brain responsible for holding and processing information temporarily. Sweller’s Cognitive Load Theory (CLT) suggests that students’ working memory is limited, capable of holding only small chunks of information at a time. This means teachers need to be mindful not to overload students’ working memory by presenting information in a structured and manageable way to optimise cognitive load. Strategies such as sequencing information in small steps and using worked examples support students in managing information more effectively.



BUILDING KNOWLEDGE

Are you enabling students to build schemas?

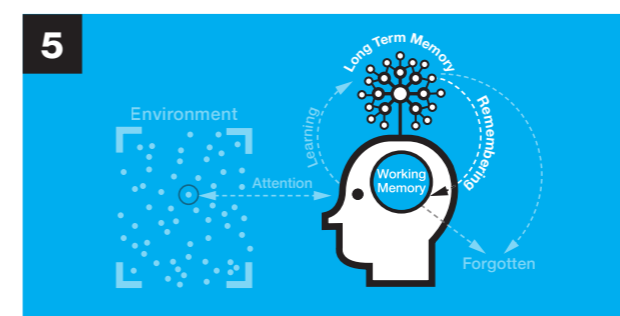
In cognitive science, the process of constructing knowledge involves developing interconnected ‘schemas’. Schemas are interlinked mental structures that embody our comprehension of concepts. Teachers should create chances for students to explore and build schemas by identifying connections between previous learning and the knowledge and skills introduced in the current lesson. Psychologist David Ausubel argues that this connection renders learning ‘meaningful’. Breaking down information into smaller, chunks facilitates students’ ability to relate to and absorb new knowledge.



COGNITIVE ENGAGEMENT

Are you pushing all students to think hard?

To ensure new knowledge is effectively stored in long-term memory, it’s crucial to stimulate thinking and maintain students’ cognitive engagement throughout the lesson. Additionally, it’s our responsibility to assess students’ existing knowledge. Without gathering evidence of learning, we risk basing our assessment of students’ competence and understanding on limited information, which can lead to significant gaps in knowledge. Questioning techniques and formative assessment strategies are reliable approaches for gathering evidence of progress that inform our decision-making processes.



GENERATIVE PROCESSES

Are students consolidating their learning?

When students create knowledge themselves, they actively form meaningful connections. Neuroscientist Arthur Shimamura explains, “Generating information reactivates learned material, aiding memory consolidation.” Effective schema building doesn’t happen in lessons overly focused on activities and student actions alone. Instead, teachers should aim to provide opportunities for students to engage with generative activities, followed by challenging them to retrieve information from memory through ‘desirably difficult’ retrieval practice activities.



The ideas in this poster underpin the one-page summaries in ‘Collection 1: Learning and Memory’ featured in Jamie Clark’s best selling book ‘Teaching One-Pagers’.