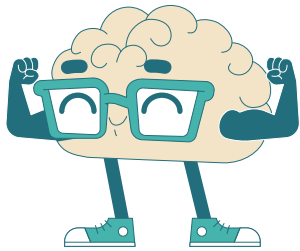


12 NEUROSCIENCE PRINCIPLES FOR EFFECTIVE LEARNING



1

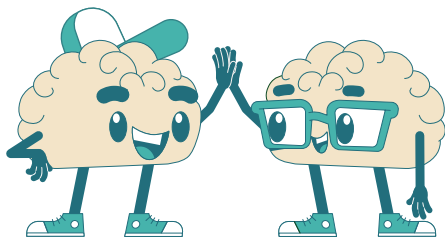
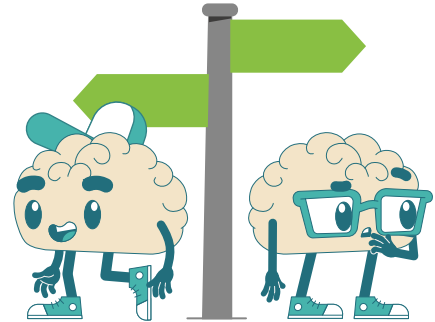
LEARNING CHANGES THE BRAIN

Those who teach change learners' brains. Pedagogical strategies stimulate reorganization of neural connections. This generates knowledge, abilities, and attitudes.

HOW WE LEARN IS UNIQUE

Brains are different because of their genetic makeup and due to changes resulting from interactions experienced. A teacher works with the same content for everyone, but each student's brain processes it in unique ways.

2



3

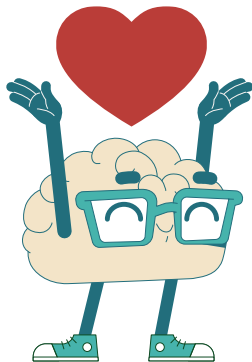
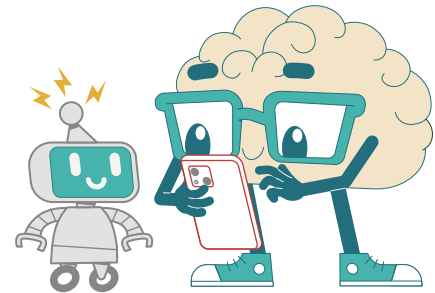
SOCIAL INTERACTION IS CONDUCIVE TO LEARNING

Iterative social interaction changes brain activity. This improves communication, attentional focus, engagement, motivation, and persistence in a learning situation and leads to greater pedagogical effectiveness.

TECHNOLOGY USE INFLUENCES INFORMATION PROCESSING AND STORAGE

New technologies have boosted learning personalization. Also, they have fostered collaborative learning, and students' autonomy in searching for information. But without proper guidance, technology use may lead to multitasking and fast, superficial information processing. This jeopardizes learning.

4



5

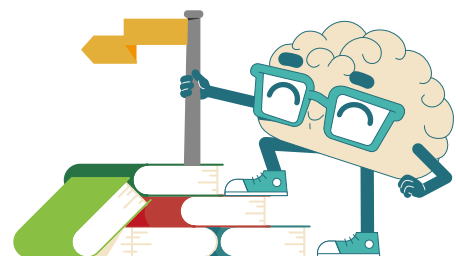
EMOTION STEERS LEARNING

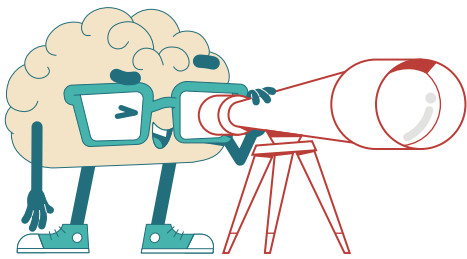
Emotion signals experience, promotes meaning construction and generates motivation for learning. Emotion and cognition are indissociable. Without emotion, there is no memory, complex thought or meaningful decision-making, and social interactions for learning do not get managed.

MOTIVATION SETS THE BRAIN INTO LEARNING MODE

The wish to learn coupled with curiosity, choice control, self-leadership and personal fulfillment lead to motivation. This influences brain areas related to decision making and action planning and engages students in the learning process.

6



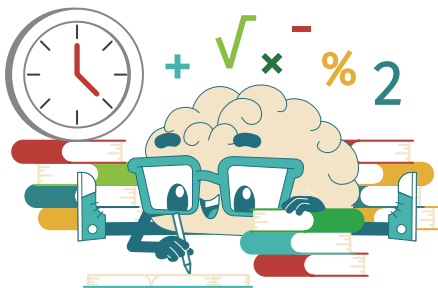
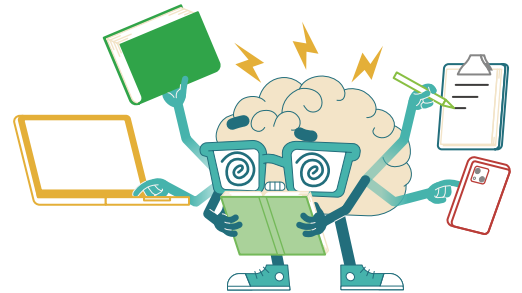


7 ATTENTION IS THE GATEWAY FOR LEARNING

Attention selects information and is essential for memory formation. If we do not pay attention, our brain does not process information. Thus, it cannot be registered or learned.

8 THE BRAIN DOES NOT MULTITASK

The brain does not adequately process two stimuli at a time. Multitasking behavior dims attention and working memory capacity. It makes students lose focus and reading comprehension grows more difficult. Also, students' ability in note taking wanes and learning is negatively affected.

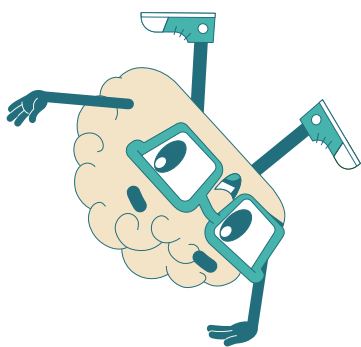
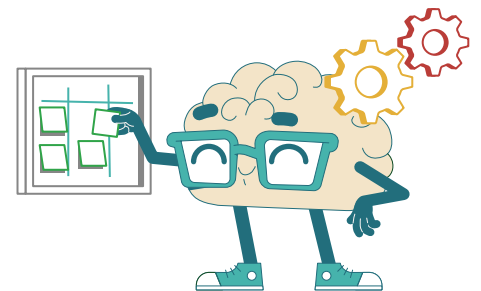


9 LEARNING REQUIRES ELABORATION AND TIME TO GET CONSOLIDATED IN MEMORY

Cramming means information overload without much elaboration. This leads to fast forgetting. For effective information registration, information needs to go through repetition, elaboration, retrieving, and consolidation. This takes time and demands active learning.

10 SELF-REGULATION AND METACOGNITION BOOST LEARNING

The capacity to monitor thinking processes, emotions and behaviors is essential for self-regulated learning. Channeling time and energy into effective ways of studying and learning gives students the means to proactively manage their own learning independently and without a teacher's constant supervision.



11 WHEN THE BODY TAKES PART, LEARNING BECOMES MORE EFFECTIVE

Motion and cognition are strongly related. Practical activities that integrate motion in learning situations make students feel, process and register experiences that reconfigure the brain more effectively. Keeping students seated and passive is not conducive to learning.

12 CREATIVITY REORGANIZES MULTIPLE NEURONAL CONNECTIONS AND EXERCISES THE LEARNING BRAIN

The essence of creativity lies in channeling imagination, making new associations, integrating knowledge, and in crossing data. It makes students go beyond simple rote learning of concepts and formulae, and activates mental functions reorganizing multiple neuronal connections.

