Students think that they study when they read a textbook, they read their notes, or hear a lecture. Learning is a biological function of the brain. Reading and/or listening are not enough!

**Sensory Memory**

When we smell, touch, look at anything or hear anything, the brain only captures the image or information momentarily. It does not automatically store it. The information simply passes through the brain; there is no retention of information. Therefore, when a student reads, the words on the page simply enter and leave the brain. When a student sits in class and listens to a professor, the information simply enters and leaves the brain. No information is stored. This concrete experience occurs in the sensory cortex of the brain.

**Short-term/Working Memory**

To move information from sensory memory to short-term/working memory, we must pay attention when hearing or seeing. Even then the information is retained for a very short period of time. Some study strategies that help students keep information in the working memory for a short time are:

- Taking notes
- Making flash-cards
- Highlighting important concepts
- Circling important names or places
- Underlining important points or ideas.

This reflection activity occurs in the back or posterior integrative cortex of the brain.

**Long-term Memory**

To move information from short-term/working memory to long-term memory where deep learning takes place and where students can actually access the information when it comes time to take a test or go to the next higher level class, students must not only pay attention but think about the information being received and link it to prior knowledge to make it meaningful. Some study strategies that help students understand, learn and store information in long-term memory are:

- Grouping and organizing notes into categories such as sequence of events, time periods, pros and cons, comparing and contrasting. Example: charts, timelines, matrices, mind maps
- Deciphering level of importance from most important to least important information. Example: outlines
- Thinking about the reading and/or lecture and making sense of it. Example: summaries, paraphrasing, questions and answers
- Connecting the information to prior learning. What is new and how is it different from what you already knew about the same topic? Example: discussing and teaching others such as in a study group.

This abstraction portion of the learning cycle occurs in the anterior or frontal integrative cortex of the brain.

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