Use Multiple Modalities

COGNITIVE LOAD THEORY

Learning Mechanisms of Cognitive Load Theory

According to Cognitive Load Theory, there are two major learning mechanisms at play in the integration of new information to long term memory:

- **Schema Acquisition** relates to the ability to relate new information to previously learned schemas. For a student learning to read, each letter presents as new information until that student has learned specific words. Once those words are learned, new words can be related to that schema rather than reverting back to that one letter at a time acquisition.
- **Automation** is the ideal outcome of learning new information. The more information is learned and processed, the more automatic it becomes and the less cognitive energy is devote to making sense of the information being processed.

CLT asks the question, "what is the function of learning?" Theorists argue that the function of learning is to store automated schemas into long-term memory. It is this change of information from schema acquisition to automation that happens over time and promotes a learner from novice to expert.

Connection to Working Memory

Working Memory research suggests that the average person's working memory capacity can hold, manipulate, and store approximately 7 units (give or take 2). However, for a student with impaired working memory, this number is reduced to an average of 1-3 units. Therefore, both learning mechanisms have the effect of reducing working memory. Schemas combine multiple elements into a single element, and the processing that occurs requires less working memory space and therefore space is created for other functions. In addition, materials presented in an integrated format allow for more information to be connected to previously established schema, which requires students to learn (and hold) less information independently.

HOW IS THIS USING MULTIPLE MODALITIES?

In order for students to fully understand the material, it is important that they be given the opportunity to interact with that material. Therefore, using multiple modalities allows the information to reach all students and provides them with many opportunities for engagement.