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MIND BREW

Office of Student Success



Going beyond rote memorization: How cognitive elaboration enables applicational and longitudinal learning.

THE LEARNING SPECIALIST TEAM

By the time most of you are reading this, you will have one block of your medical school journey under your belt. In celebration, we say well done.

Unfortunately, the work doesn't stop. Your foundations block is just the beginning of your academic growth and medical school journey.

Having conceptual, foundational knowledge is one thing. To apply it meaningfully is another. Most students struggle with just absorbing new material. Elaborating on the material in a case-based scenario, board-level question, or clinical correlation requires deliberate practice of cognitive elaboration.

Before we get into cognitive elaboration, it is important to understand schemas. Psychologists have developed cognitive theory around the concept of working models (schemas). These working models encompass your knowledge, experiences, heuristics, and connections around certain topics.

Continues on Page 2

Current Cognitive Research in Media

Creativity, Insight, and Eureka Moments (APA's Speaking of Psychology Podcast)



Learning and Applying Medical Knowledge (The Learning Scientists)



Two core working model principles are assimilation versus accommodation. When we learn something new that we have no prior experience with, we must accommodate that information into a new working model. Assimilation involves taking new information and incorporating it into our older working models.

Cognitive elaboration is a technique that builds a bridge between our older working models to accommodate new and difficult information (Anderson, 1983). Self-generated cognitive elaboration allows the student to tie newer material to older material they have previously learned.

Drawing on your own experiences or producing your own examples are particularly effective. Studies have demonstrated that generating your own examples produced better performance not only on memorization questions, but also on applicational questions (Ziong et al., 2014).

One of the many reasons that self-generated elaboration works is because it engages semantic processing. Semantic processing is inherently tied to our personal experiences and memories. When we draw on our own examples, those concepts are more likely to stick because we are relating it something personally significant. Thus, bridging those gaps between new information and old information.

As you continue forward into new blocks, think back to how this new knowledge builds on what you learned in foundations, your undergraduate degree, previous work experience, research, clinical hours, or extra-curricular activities. This enables you to learn the material more efficiently, effectively, and creatively. Students who utilize cognitive elaboration formulate more abundant and creative connections that enables their longitudinal learning. Utilize your past experiences to impact and shape your future learning.

For more tips on how to conduct cognitive elaboration or other learning strategies, please email your assigned learning specialist.

References

Anderson, J.R. (1996). *The Architecture of Cognition* (1st ed.). Psychology Press. <https://doi.org/10.4324/9781315799438>
Xiong, Y., Zhou, H., & Ogilby, S. M. (2014). Experimental Investigation of the Effects of Cognitive Elaboration on Accounting Learning Outcomes. *Journal of Education and Learning*, 3(4), 1-16.

**"Creativity is
intelligence
having fun"**

ALBERT EINSTEIN



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