

Effective study techniques

Some study techniques accelerate learning, whereas
others are just a waste of time

Michael Ernst
UW CSE 190b

Empirical evidence

Approach: Literature review of more than 700 scientific articles on 10 commonly used learning techniques

Citation: “Improving Students’ Learning with Effective Learning Techniques: Promising Directions from Cognitive and Educational Psychology,” by John Dunlosky, Katherine A. Rawson, Elizabeth J. Marsh, Mitchell J. Nathan and Daniel T. Willingham, *Psychological Science in the Public Interest* 14(1), pp. 4–58

Popular press citation: “What Works, What Doesn’t”, by John Dunlosky, Katherine A. Rawson, Elizabeth J. Marsh, Mitchell J. Nathan and Daniel T. Willingham. *Scientific American Mind* Sep/Oct 2013, pp. 47-53.

Highly effective and generalizable

Self-testing: quizzing yourself

Flash cards, sample questions, sample tests

Can take notes in 2 columns, one with key words; test yourself later

Don't view the answer while you are "quizzing"!

Distributed practice: spread your study over time

1. Higher recall after spaced study

You can spread out textbook exercises

2. Cramming yields very short-term memories

To remember for 1 week, learning episodes should be 12-24 hours apart

To remember for 5 years, learning episodes should be 6-12 months apart

Sometimes worthwhile, depending on situation

Elaborative Interrogation

Learners produce explanations for facts, such as “Why does it make sense that...?” or “Why is this true?”

Self-Explanation: How Do I Know?

Students generate explanations of what they learn, such as “What new information does the sentence provide for you?” or “How does it relate to what you already know?”

Interleaved Practice

Rather than "blocking" where you do lots of problems that exercise the same ideas, mix it up and do problems that require a variety of different skills.

Poor

Summarization

Students identify a text's main points

Unknown whether should focus on small or large parts of a text.

Keyword mnemonics

May help with foreign-language vocabulary (la dent = tooth, via “dentist”)

No long-term gains, not worth the time.

Imagery for text learning

Mental picture of each paragraph

No long-term effects

Definitely doesn't work

Highlighting

Simple, quick, ineffective

Reduces ability to draw inferences

Rereading notes or textbooks

The second reading seems valuable; not so much after that