



# Transfer

"The main thing has to be the main thing." - Pat Riley

**Overview** Though it's natural to try to pack as much content into one instruction session as possible, this approach can be cognitively overwhelming to learners. One alternative is to cover less material but dig deeper into its transferrable meaning. Be kind to learners' brains - "do less" so they can learn more!

## COGNITIVE OVERLOAD

If we did everything we thought was important in a session, our Learning Outcomes might look something like:

- Students will be able to ...**
- Contact a librarian if they have additional questions about their research
  - Understand the difference between primary, secondary, and tertiary sources.
  - Employ Boolean operators and other search strategies to construct a meaningful and precise search.
  - Use background information to explore various aspects of their topic.
  - Ethically use sources and employ a consistent citation style.
  - Determine the relevance and utility of sources for an argument.
  - Use the Open Web to find information on their topic.
  - Define an appropriately sized research question about a topic they are interested in.
  - Utilize a constellation of appropriate sources to develop an argument, as well as to refute potential counterarguments.
  - Develop keywords that lead them to information on their topic
  - Use library databases to find information on their topic.

## The Science of COGNITIVE OVERLOAD

This, the science of learning tells us, is a bit too much: the human brain can only retain a limited amount of information at one time.



### Working Memory

Working Memory has a limited capacity. It can only handle a relatively small amount of information before it shuts off.



### Long Term Memory

When working memory shuts off, it cannot transfer information to long-term memory - leading to "cognitive overload".

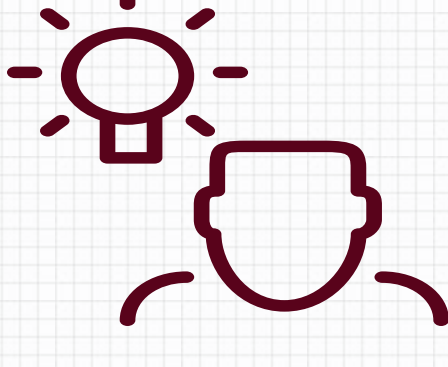


### Learning

Thus, the consequence of doing "too much" is that learning stops, and very little is retained.

## AVOIDING COGNITIVE OVERLOAD

For any learning outcome, think about the deep meaning of the material, the **MAIN THING** you want students to take away from this outcome.



This is the **deep structure** of your learning outcome - the element of the content that **TRANSFERS** across multiple contexts.

**Practice Tip** Select ONE or TWO major learning outcomes, and focus on the "deep structure" of those outcomes

## How it Works: Retention, Transfer, Learning

"The primary goal of education is to promote **learning** - that is, a change in the learner's knowledge [...] Two classic measures of learning outcomes are retention and transfer. **Retention** is the ability to remember what was presented. **Transfer** is the ability to use what was learned [and apply it] in new situations."

Mayer, R.E., & Wittrock, M.C. (2006). Problem Solving. In Handbook of Educational Psychology (pp. 287-303). London: Routledge.

## Do Less so Students Learn More

One way to avoid cognitive overload is to pick one or two learning outcomes based on the CORE SKILLS you want the students to retain and transfer in the session.

- Students will be able to ...**
- Contact a librarian if they have additional questions about their research
  - Define an appropriately sized research question about a topic they are interested in.
- ~~Understand the difference between primary, secondary, and tertiary sources.~~
- ~~Employ Boolean operators and other search strategies to construct a meaningful and precise search.~~
- ~~Use background information to explore various aspects of their topic.~~
- ~~Ethically use sources and employ a consistent citation style.~~
- ~~Determine the relevance and utility of sources for an argument.~~
- ~~Use the Open Web to find information on their topic.~~
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- ~~Develop keywords that lead them to information on their topic~~
- ~~Use library databases to find information on their topic.~~

## PUTTING IT INTO PRACTICE

### Focus on What Transfers:

- What is the main thing I want learners to walk away from this session understanding?
- What is the central meaning of the concept I am introducing, which will allow students to use this knowledge in many different contexts, not just the one we are talking about today?

### Research shows that students struggle transferring information literacy skills in contexts that matter

"...many of today's graduates soon discover that the techniques that may have worked so well for finding information when they were in college are no longer enough. Other factors also figure into the equation for job success, such as teamwork and the ability to ferret out information beyond what they find on their computer screens."

Head, A. J. (2012). Learning Curve: How College Graduates Solve Information Problems Once They Enter The Workplace. *Project Information Literacy Research Report: "Learning Curve."*

**Practice Tip** Choose Learning Outcomes based on the needs of the assignment, where students are in their research process, and the element of that assignment most likely to transfer.

## REFERENCES & FURTHER READING

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