

Teaching students how to learn

Using metacognition to teach students to learn effectively

Learning Goals:

After today's meeting, TAs should be able to...

- 1) Define metacognition and its connection to student success
- 2) Identify student learning strategies and classroom strategies that promote metacognition

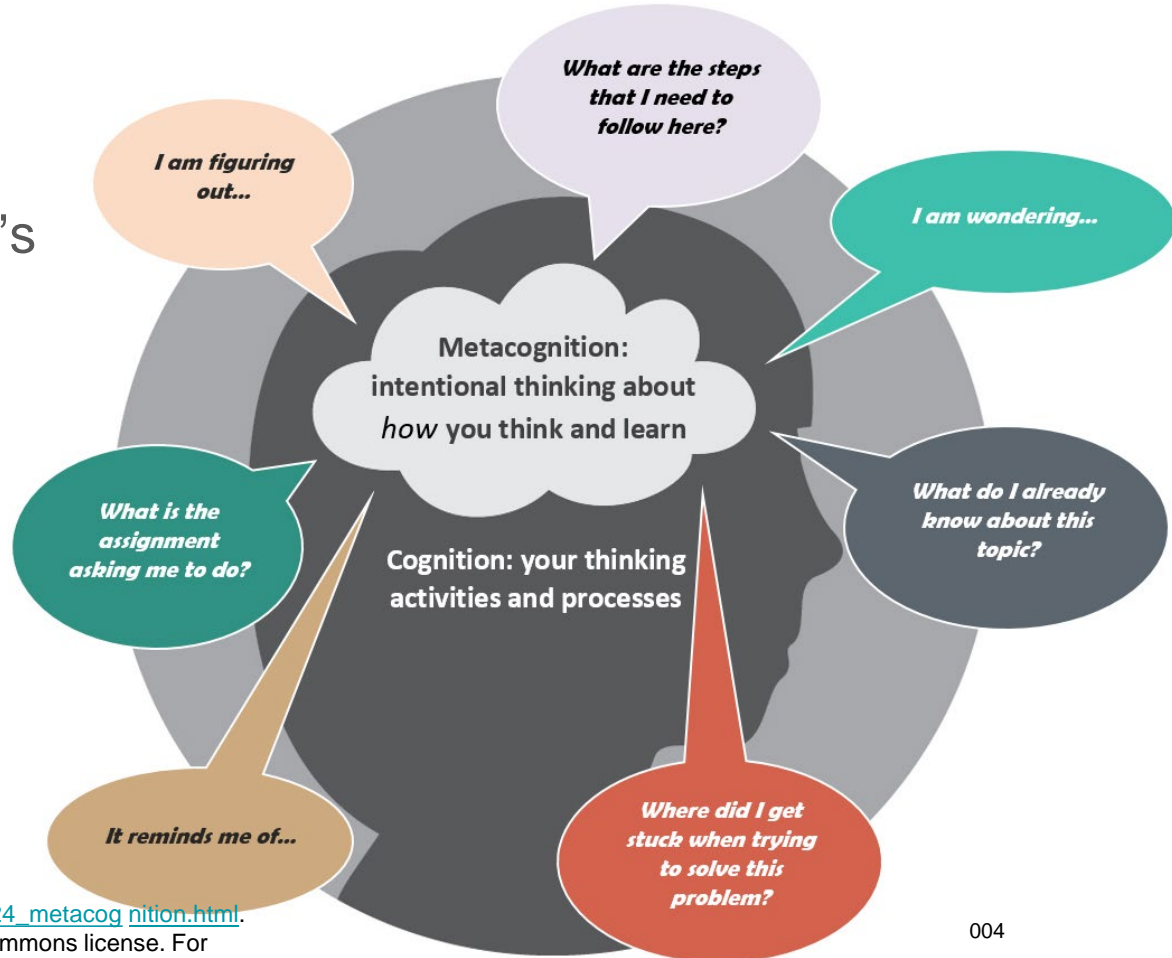
Is there a difference between learning and studying?

Metacognition

What? Knowledge of one's own cognitive processes

Why? Can help deepen understanding and thinking like biologists

How? When?



Count the vowels! (45 sec)

Dollar bill

Cat lives

Dice

Bowling pins

Tricycle

Football team

Four-leaf clover

Dozen eggs

Hand

Unlucky Friday

Six-pack

Valentine's Day

Seven-Up

Quarter hour

Octopus

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Try to recall all of the words and phrases that you just saw. List as many as you can.

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Read each column top to bottom to identify the organizing principle. Commit the list to memory.

Dollar bill

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What made the difference in your ability to remember the list between the first and second trials?

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What made the difference in your ability to remember the list between the first and second trials?

The second trial was more successful because...

1. You had greater awareness of your goal
2. You were able to apply a learning strategy - anything that helps the learner engage with, process, remember, or apply information
3. You had a chance to reflect on your learning process

How can we as teachers promote metacognition?

- Make learning goals explicit
- Communicate learning strategies with our students
- Provide opportunities for students to reflect on their own learning strategies and gauge progress towards learning goals

Explicit learning goals

Brainstorm with a partner 1-2 concrete ideas of how you could work to make learning goals explicit during your recitation or lab period.

Study practices promoting metacognition: A Case Study

“Two students, Maya and Josephina, from your course independently visit your office the week after the first exam. Both students are biology majors. Both regularly attend class and submit their assignments on time. Both appear to be eager, dedicated, and genuine students who want to learn biology. During each of their office hours visits, you ask them to share how they prepared for the first exam. Their stories are strikingly different...”

Case study: Josephina

“During office hours, Josephina expresses that she was happy the exam was on a Monday, because she had a lot of time to prepare the previous weekend. She shares that she started studying after work on Saturday evening and did not go out with friends that night. When queried, she also shares that she reread all of the assigned textbook material and made flashcards of the bold words in the text. She feels that she should have done well on the test, because she studied all Saturday night and all day on Sunday. She feels that she did everything she could do to prepare. That said, she is worried about what her grade will be, and she wants you to know that she studied really hard, so she should get a good grade on the exam.”

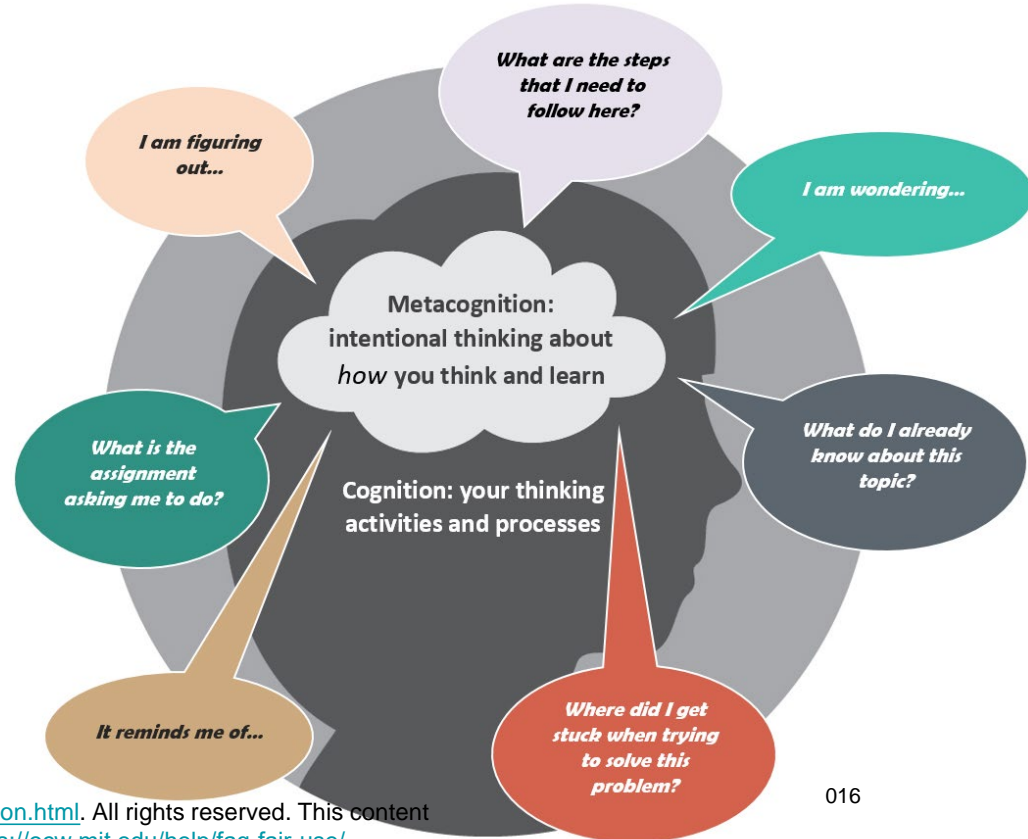
Case study: Maya

“Later in the week, Maya visits your office. When asked how she prepared for the first exam, she explains that she has regularly reviewed the PowerPoint slides each evening after class since the beginning of the term 4 weeks ago. She also read the assigned textbook pages weekly, but expresses that she spent most of her time comparing the ideas in the PowerPoint slides with the information in the textbook to see how they were similar and different. She found several places in which things seemed not to agree, which confused her. She kept a running list of these confusions each week. When you ask what she did with these confusions, she shares that she brought them to her weekly study group with peers from her course lab section. There, she says, she got most of her questions answered and lots of her confusions cleared up. She has come to office hours to ask you about a couple of things that she did not figure out before the exam that she thinks she probably missed. She is not too worried about her score on the exam, because most of the material related to problems and concepts that she felt had been thinking about a lot.”

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Provide opportunities for students to reflect on their learning

- Select a prompt as a jumping off point
- Brainstorm a rough idea for an in-class activity using this prompt
- Share out the context for the activity (what and when) and how you would implement it



Exit Ticket:

+ What is one thing you are taking away from our discussion on metacognition?

△ Is there anything you still have questions about?

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