Teaching Metacognitive Learning Strategies to Students

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Scholarship of Excellence in Teaching • 2018 Cohort

Overview

Teaching students metacognitive learning strategies...

1. Why did I do it?
2. How did I do it?
3. Did students benefit from it?

Why teach students metacognitive learning strategies?

Problem

- Calculus (math) classes have high DFW rates.
- Many students who fail in my calculus classes lack study skills.
- Financial aid does not cover study skills courses taught by our counselors.

Goals

- Help students be more successful in my calculus class.
- Help student be more successful in all of their classes.
- Help students be more successful in life-long learning.

The need for a long-term view of learning

Option one: Include lots of content

- Students end up neither caring about the subject nor learning how to keep on learning
- What are the chances that students will either retain what they have learned or make the effort to keep on learning?

Option two: Take the long-term view

- Students ... come to care about the subject and about learning how to keep on learning.
- It seems much likelier that they will both retain what they have learned and continue to enlarge their knowledge after the course is over.

L. Dee Fink, Creating Significant Learning Experiences

The need to create wicked students

Because...

- Students don't always go into the fields they study
- Or get the jobs they want
- Or stay in the fields they start in
- Or stay in the positions they start in
- The workplace isn't divided into "PSYC," "ENGL," and "BIOL"

What does it take to create Wicked Students?

CONTENT KNOWLEDGE
+
SKILLS
+
"AUTHORITY"

Paul Hanstedt, Creating Wicked Students

How to teach students metacognitive learning strategies?

Prof. Dong's Math Class Primer

Tips for Math Success by Prof. Dong

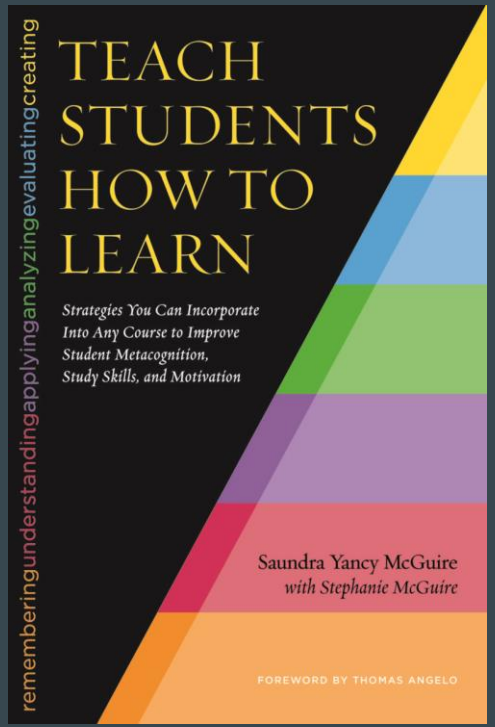
Valediction to My Math Class

Click on each scroll to see the document

How to teach students metacognitive learning strategies?

Tips for Math Success

- Strategies from Teach Students How to Learn by Saundra McGuire
- Materials borrowed from colleagues
- Created my own materials
- Each tip discussed in class for 15 - 30 minutes, dispersed throughout the semester



How to teach students metacognitive learning strategies?

Tips for Math Success

1. Think about your learning
2. Understand the Flipped Classroom model
3. Use Bloom's Taxonomy
4. a. Follow the Study Cycle

   b. Learn to read math

   c. Learn to self-assess
5. Build good habits
6. Don't do it alone
7. Know your learning style preferences
8. Check your motivation and attitude
9. Develop a growth mindset

Do students benefit from metacognitive learning strategies?

Mid-semester Survey

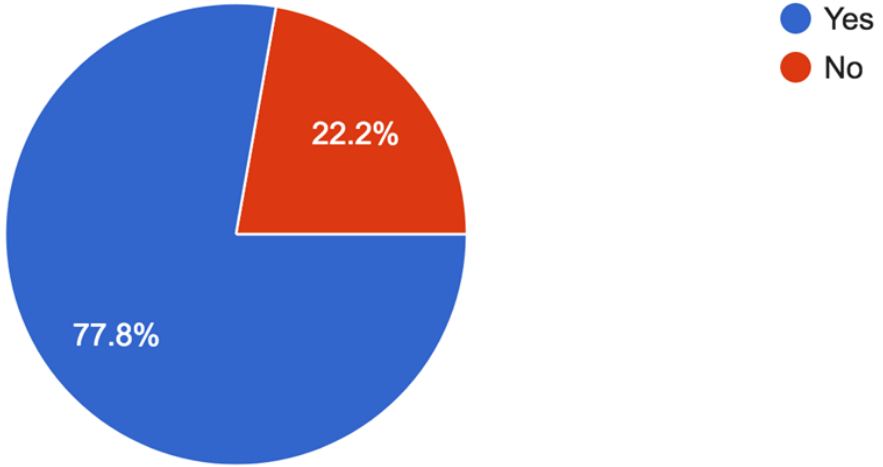
- Administered online via Google Forms
- Anonymous
- Week after midterms
- After midterm grades were posted
- 9 students responded

End-semester Survey

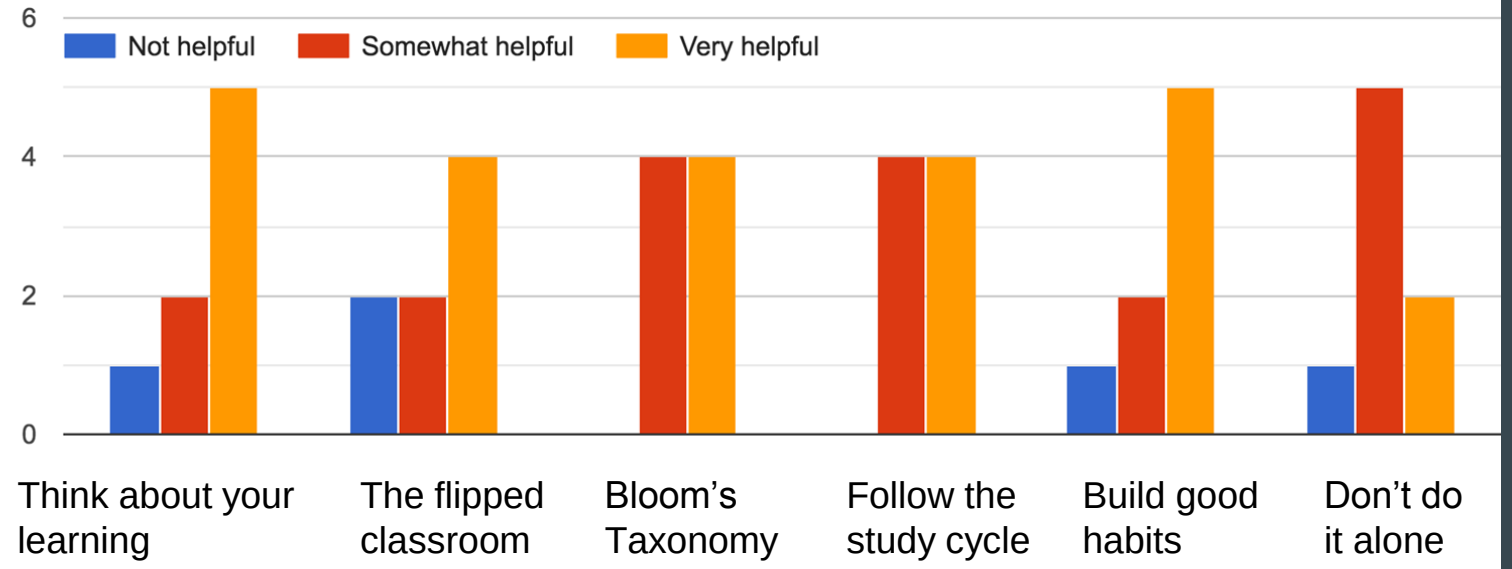
- Administered online via Google Forms
- Anonymous
- During final exam week
- Before final grades were posted
- 5 students responded

Have you heard of metacognition before this class?

9 responses



Mid-semester survey



Mid-semester survey

Mid-semester survey

Has any of the metacognition information changed the way you think? How?

“Not really. I have already used some of those, while the others seemed obvious.”

Mid-semester survey

Has any of the metacognition information changed the way you behave or act? How?

“I was able to restructure my method of studying in all classes.”

End-semester survey

Were Prof. Dong's "Tips for Success" helpful to you? Should she continue to teach it in her classes?

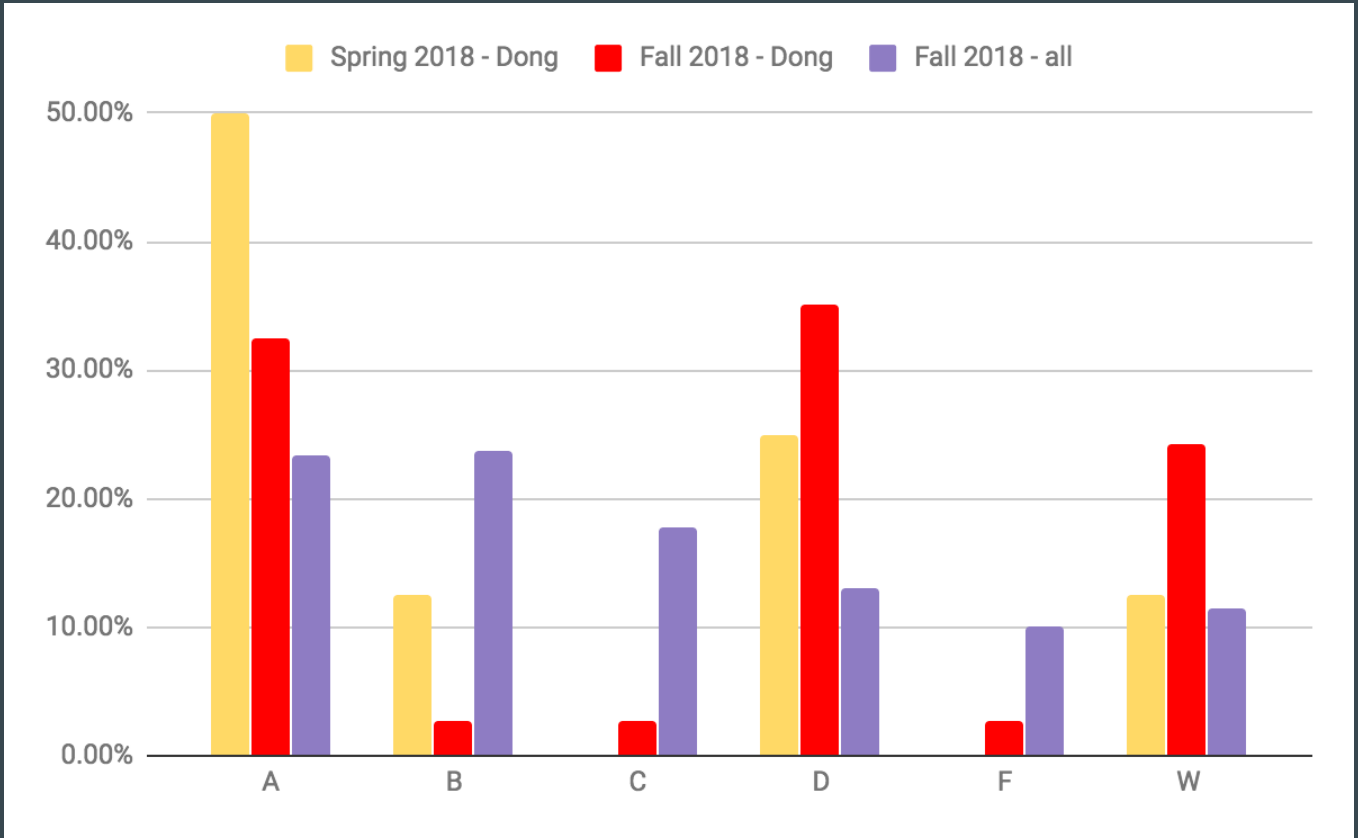
“Yes for both questions.”

“Absolutely!”

“Somewhat helpful for me, but yes, they can definitely help people”

“Yes”

Final Grades



Future Work

1. Teach metacognitive learning strategies in precalculus (Spring 2019)
2. Expand and refine “Tips for Math Success” (on going)
3. Collect data and feedback on effectiveness of teaching metacognitive learning strategies (on going... long-term)