DIFFERENT BY DESIGN

TAking A METACOGNITIVE APPROACH TO ACTIVE LEARNING

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LEARNING OUTCOMES

At the end of this webinar, participants will be able to:

- Describe the relationship between metacognition and active learning
- Understand several approaches to engaging students in active learning that fosters metacognition and metacognitive awareness in students
- Identify ways in which they can use metacognition to design and implement active learning in their classes
ACTIVE LEARNING

- Active learning involves students in doing things and thinking about the things they are doing (Bonwell and Eison, 1991)
- "I fear we've gotten too fixated on the activity and for the sake of the activity and aren't as focused as we should be on the learning. We're still obsessed with collecting teaching techniques--all those strategies, gimmicks, approaches, and things that we can do to get students engaged. But what kind of engagement does the activity promote?" (Weimer, 2018, para. 1).
For a more productive approach to our discussions about active learning, we might consider re-framing the category as a system of pedagogical approaches that utilizes those teaching strategies most aligned with and responsive to the ways in which people actually learn.

(Eyler, 2018, para 5)
ACTIVE LEARNING

Brief, in-class activities (no major course revisions or modifications needed to incorporate):

- Minute Papers
- Think-Pair-Share
- Polls
- Collaborative Note Taking
METACOGNITION

• "Metacognition refers to thinking about, planning and control of, one's own thinking" (Girash, 2014, p. 152).
• "The 2-fold distinction of metacognition is typically expressed as knowledge (and sometimes personal beliefs) about cognition and understanding, and regulation or control of cognition and thinking" (Girash, 2014, p. 153).
• Dimensions of metacognitive knowledge: declarative (knowledge of one's abilities about cognition in general), procedural (how to think and learn efficiently), and conditional (context-specific) (McCormick, 2003; Schraw & Moshman, 1995).
• Metacognitive knowledge vs. metacognitive awareness
METACOGNITION

• Metacognitive students are aware of their own learning processes and adjust them based on experience and reflection.
• Involves planning, monitoring, and evaluation of strategies, and therefore is task-dependent and mutable.
• Metacognitive strategies are connected to motivation, specifically to value and expectancy.
• Metacognitive students are constantly adapting and adding to their strategy repertoire, and they realize that they are not limited by a certain learning style.

(Steiner & Foote, 2017)
METACOGNITION

Brief, in-class activities (no major course revisions or modifications needed to incorporate):

- Minute Papers
- Think-Pair-Share
- Polls
- Collaborative Note Taking
- Learning/Reflective Journals
for 30 seconds
during class
before class

turn to your neighbor
walk across the room

with the whole class
with another group
verbally
in writing

group size = 2

THINK - PAIR - SHARE

Ask students to respond to a question independently.
with pen and paper or a laptop in writing as you doodle

Have students compare answers in small groups.
come to consensus agree to disagree
explain your reasoning share your opinion

Ask students to share their work with the class.
via polling software via whiteboard class discussion time for telling
TAking a metacognitive approach

Approaches to using metacognition to develop, design, and implement active learning in courses:

- Metacognitive teaching
- Before, during, and after class activities (retrieval and reflective practices)
- Debunking misconceptions about learning and "inspiring" students to use metacognitive skills and develop metacognitive behaviors
METACOGNITIVE TEACHING

- Forethought, planning, and goal setting - Survey course syllabus and design for inclusiveness; focusing questions

- Monitoring, acting - Mid-semester evaluations; exam, assignment wrappers, and minute papers

- Regulation, control - Focusing questions

- Reflection, reaction - Teaching-focused FLCs and other professional development

Zimmerman, B. J. (2001)
# METACOGNITIVE TEACHING

<table>
<thead>
<tr>
<th>Activity</th>
<th>Planning</th>
<th>Monitoring</th>
<th>Evaluating</th>
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</thead>
<tbody>
<tr>
<td>Class session</td>
<td>• What are my goals for this class session?</td>
<td>• What do I notice about how my students are behaving during this class session? Why do I think this is happening?</td>
<td>• How do I think today’s class session went? Why do I think that and what evidence do I have?</td>
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<tr>
<td></td>
<td>• What do I think students already know about this topic? What evidence do I have to support this?</td>
<td>• What language or active learning strategies? To what extent are they facilitating or impeding learning?</td>
<td>• How did the ideas from today’s class relate to previous class sessions?</td>
</tr>
<tr>
<td>Overall course</td>
<td>• How does success in this course relate to my students’ career goals? How might I reveal these connections to them?</td>
<td>• In what ways am I effectively reaching my goals for students through my teaching? What could I do to expand on these strategies?</td>
<td>• What evidence do I have that students in my course have learned what I think they have learned?</td>
</tr>
</tbody>
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(Tanner, 2012)
BEFORE, DURING, AND AFTER CLASS ACTIVITIES

- Pre-assessments to prompt examination of initial thinking
- Instructor modeling (metacognitive prompting, retrieval, etc.)
- Muddiest point responses
- Reflective journals for self-monitoring (low stakes assignments that get at what worked and why)
- Integrating reflection into credited course work with questions that prompt reflection on the most challenging aspects of the assignment; concept mapping, etc.

(Girash, 2014)
BEFORE, DURING, AND AFTER CLASS ACTIVITIES

Just in Time Teaching (JiTT)

WarmUps
Prompt students to be ready to engage in class by responding to a few online questions before class.

GoodFors
Brief writing that connects class to the real world, used to spark classroom discussion; completed online before class.
Peer Instruction
• Periodically interrupt lecture to ask students to work on a specific problem that challenges students to think and to interact (briefly) with peers about their understanding of core principles in the class.

• Give students immediate feedback on their understanding.

• Adapt your teaching based on student performance.
DEBUNKING MISCONCEPTIONS ABOUT LEARNING

How to Study Long and Hard and Still Fail...
Or How to Get the Most Out of Studying

Video 1: "Beliefs That Make You Fail... Or Succeed"

SAMFORD UNIVERSITY
"INSPIRING" STUDENTS TO USE METACOGNITIVE STRATEGIES

• Cultivating a relationship between growth mindset and deliberate practice (Pelley, 2014)
• Fostering the development of metacognition through instructor-led modeling of metacognitive self-questioning and exam wrappers (Girash, 2014)
• Establishing task-based student groups to compare strategies and solutions (Sarkisian, 1997)

COMPREHENSION
What is the task about?

CONNECTION
What are the similarities and differences between this task and those performed in the past?

STRATEGIC
What are the strategies, tactics, etc. needed to solve the task and why?

REFLECTION
What am I doing right now? Can I take a different approach?

(Girash, 2014)
REFLECTION AND DISCUSSION

• How, specifically, can you design active learning in your classes to foster metacognitive awareness in your students?
• How can you, in your role as a faculty member, develop your own metacognitive awareness?
• How can you draw on and from your metacognitive awareness to develop meaningful active learning activities and prepare your students to maximize these powerful learning experiences in and beyond the classroom?
REFERENCES


REFERENCES


Thank you!

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