Teaching Metacognitive Strategies
Thinking about Thinking:
Metacognitive Instructional Design

Jimmeka Guillory Wright, Ph.D.
Spelman College
FITW Co-PI
My Background

• Associate Professor, Spelman College

• Psychology Department
  • Cognition & Student Learning
  • Memory Updating-Correction of Misinformation in Memory, Belief Perseverance

• Co-PI U.S. Department of Education First in the World (FITW) Development Grant
Session Outline

• What is Metacognition?
• The Faculty
• The Intervention
What is Metacognition?
• Weaker students tend to be extremely overconfident in how well they understand material (Murstein, 1965).
• Having poor metacognition may indicate that students have poor study skills...in that case, “more studying” won’t help.

Poor study skills can increase confidence without increasing understanding!
One problem with poor judgment is that we usually don’t know when we’ve got it.

- Can we address the “illusion of knowing” problem in the classroom?

- Can teaching metacognitive awareness in the classroom help students to become more aware of their learning and understanding?

Stages of Metacognition:

- **Planning**
  - Processes prior to learning task

- **Monitoring**
  - One’s online awareness of comprehension or performance

- **Evaluating**
  - Post-task activity
The Faculty
Fall 2015 grant awarded

Spring 2016 Pilot Intervention Strategy

July 2016 Recruit ADW faculty & administer Metacognitive Awareness in Teaching Scale
• MAI (modified): 52 questions & 23 “filler” questions
• **Directions for instructors**: Listed below are statements about behaviors or strategies that instructors may encourage in the classroom. After reading each statement circle the number (1, 2, 3, 4, or 5) that applies to you using the scale provided. Please note that there are **no right or wrong answers** to the statements in this inventory.

1= “**I never or almost never** do this”
2= “**I do this only occasionally**”
3= “**I sometimes** do this” (About 50% of the time)
4= “**I usually** do this”
5= “**I always or almost always** do this”
The Intervention

RCT 1: Faculty
Fall 2015 grant awarded

July 2016 Recruit ADW faculty & administer Metacognitive Awareness in Teaching Scale

Spring 2016 Pilot Intervention Strategy

August 2016: Training Module
Sent out immediately post-randomization; to be completed prior to training workshop

3 Sections
1. Section 1: Background Information
2. Section 2: Treatment Instructional Strategies
3. Section 3: Resources

Activity to be completed after each module
Section 1: Background Information

- What is the First in the World Grant?
- Why ADW?
  - Role as an ADW instructor
- The importance of Experimental Design
  - Random Assignment
  - Risk of Spillover
  - Fielding Questions
- **Activity:** Questions about Section 1 (to be addressed in training)
Section 2: Treatment Instructional Strategies

- **What is Metacognition?**
- **The Metacognitive Model**
- **Activity:** The ADW Syllabus-Create Your Own Metacognitive Lesson
Section 3: Things to Keep in Mind

• Resources

• Instructional Strategy Handbook

• Activity: Goal Setting-How can you use metacognitive strategies in the classroom to achieve your teaching goals?
Fall 2015 grant awarded

July 2016 Administer Metacognitive Awareness in Teaching Scale

Spring 2016 Pilot Intervention Strategy

August 2016: Training Workshop

August 2016: Training Module
Reciprocal Teaching
Goal of Reciprocal Teaching (RT): Students should be able to self-monitor their comprehension as they are reading.

4 Strategies
While reading, the instructor teaches students how to...
1. Generate questions
2. Summarize (in own words)
3. Attempt to clarify word meanings or confusing text
4. Predict what might appear next

Scaffold Practice

1. Instructor modeling of 4 strategies on text selection
2. Students practice strategies on next selection
3. Instructor invites students to initiate discussion & react to their peers statements
4. Gradual shift in responsibility
5. The practice becomes a dialogue
Self-regulated Strategy Development
Goal of Self-regulated Strategy Development: Students should develop autonomous, reflective, self-regulated use of effective writing strategies.

Instructor-Modeling may involve:
Teaching students to:
1. **Set goals** for improving specific aspects of their writing
2. **Self monitor changes** in their writing performance or behavior
3. **Develop an internal dialogue** for directing strategies (planning, monitoring, and evaluating) in the writing process

Scaffold Practice

1. Discuss it
2. Model it
3. Make it your own
4. Support it
5. Independent Performance
Reading Logs: Putting it all together
With each reading assignment students could...

- Use their reading logs to write thoughts that come to mind when they first read the title, or to comment on actions (such as referencing the dictionary when they encounter a confusing word or phrase)
- Write critical commentaries on what they read, synthesize ideas presented by the authors, and indicate how the text relates to their own experience
- All students received the same instructions for the weekly reading logs:

“As you complete your readings for the week you should also keep a log of your thoughts to submit on Moodle. In your log you should reflect on your thoughts while completing the reading assignments. This is an open assignment; you are free to discuss whatever thoughts you have about the reading experience. You may discuss any or all readings in your log. Your reading log should be a minimum of 250 words to receive full credit. You will not be allowed to submit the log after the due date/time each week.”
Fall 2015 grant awarded

July 2016: Administer Metacognitive Awareness in Teaching Scale

August 2016: Training Workshop

Spring 2016 Pilot Intervention Strategy

August 2016: Training Module

September 2016: Implementation Survey
Additional Faculty Training
Fall 2015 grant awarded

July 2016 Administer Metacognitive Awareness in Teaching Scale

August 2016: Initial Training Workshop

January 2017 Training Workshop

Spring 2016 Pilot Intervention Strategy

August 2016: Training Module

September 2016: Implementation Survey
Fall 2015 grant awarded

July 2016 Administer Metacognitive Awareness in Teaching Scale

August 2016: Initial Training Workshop

Spring 2016 Pilot Intervention Strategy

August 2016: Training Module

September 2016: Implementation Survey

January 2017 Training Workshop

February 2017 Training Workshop
Fall 2015 grant awarded

July 2016 Administer Metacognitive Awareness in Teaching Scale

August 2016: Initial Training Workshop

Spring 2016 Pilot Intervention Strategy

August 2016: Training Module

September 2016: Implementation Survey

January 2017 Training Workshop

February 2017 Introduce Bi-Weekly Check-In Survey

February 2017 Training Workshop
Fall 2015 grant awarded

July 2016 Administer Metacognitive Awareness in Teaching Scale

August 2016: Initial Training Workshop

Spring 2016 Pilot Intervention Strategy

August 2016: Training Module

September 2016: Implementation Survey

January 2017 Training Workshop

February 2017 Introduce Bi-Weekly Check-In Survey

August 2017 Training Workshop

February 2017 Training Workshop
RCT 1 Timeline

- **Fall 2015 grant awarded**
- **July 2016** Administer Metacognitive Awareness in Teaching Scale
  - **Spring 2016** Pilot Intervention Strategy
  - **August 2016**: Initial Training Workshop
- **August 2016**: Training Module
- **September 2016**: Implementation Survey
- **January 2017** Training Workshop
- **February 2017** Introduce Bi-Weekly Check-In Survey
- **February 2017** Training Workshop
- **August 2017** Training Workshop
- **September 2017** Training Workshop
**RCT 1 Timeline**

- **Fall 2015** grant awarded
- **July 2016** Administer Metacognitive Awareness in Teaching Scale
- **Spring 2016** Pilot Intervention Strategy
- **August 2016:** Initial Training Workshop
- **September 2016:** Implementation Survey
- **January 2017** Training Workshop
- **February 2017** Introduce Bi-Weekly Check-In Survey
- **February 2017** Training Workshop
- **August 2017** Training Workshop
- **September 2017** Training Workshop
- **January 2018** Training Workshop

**Sophomore Year Survey (March 2018/2019)**
The Intervention

RCT 2: Peer Recitation Facilitators (and Faculty)
## RCT 2: PRFs

<table>
<thead>
<tr>
<th>Student Condition</th>
<th>Faculty</th>
<th>Peer Recitation Facilitator</th>
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<tbody>
<tr>
<td>1</td>
<td>Treatment</td>
<td>Treatment</td>
</tr>
<tr>
<td>2</td>
<td>Control</td>
<td>Control</td>
</tr>
<tr>
<td>3</td>
<td>Treatment</td>
<td>Control</td>
</tr>
<tr>
<td>4</td>
<td>Control</td>
<td>Treatment</td>
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August 2018 Faculty Training Workshop

August 2018 PRF Training Workshop
Objectives

1. Understand the Project
2. Treatment Instructional Strategies
3. Understand with PRF Session Will Look Like
RCT 2 Timeline

- **August 2018 Faculty Training Workshop**
- **August 2018 through April 2019 Weekly PRF Meetings**
- **August 2018 PRF Training Workshop**
## Intervention Training Recap

<table>
<thead>
<tr>
<th>Year 1</th>
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<tbody>
<tr>
<td><strong>Summer 2016</strong>: Training Module</td>
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<tr>
<td><strong>Fall 2016</strong>: 2-day training workshop &amp; Implementation Survey (w/ feedback)</td>
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<tr>
<td><strong>Spring 2017</strong>: Two 1-day training workshops &amp; bi-weekly implementation surveys</td>
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<th>Year 2</th>
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<td><strong>Fall 2017</strong>: Two 1-day training workshops &amp; bi-weekly implementation surveys</td>
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<tr>
<td><strong>Spring 2018</strong>: One 1-day training workshop &amp; bi-weekly implementation surveys</td>
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<tr>
<th>Year 3</th>
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<tbody>
<tr>
<td><strong>Fall 2018</strong>: One 1-day training workshop &amp; bi-weekly implementation surveys</td>
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<tr>
<td><strong>Fall 2018 (PRF)</strong>: Two 1-day training workshops &amp; weekly meetings</td>
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<tr>
<td><strong>Spring 2019 (PRF)</strong>: Weekly Meetings</td>
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thank you!