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Enhancing Metacognition and Mindfulness in Middle School Students: Can Simultaneous Interventions Improve Academic Performance?

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CURRENT STUDY

PROBLEM: Metacognition and Mindfulness both play an important role in the development of self-regulation and have been shown to improve executive function and academic performance. Neither types of skills is routinely taught nor integrated into most school curricula.

OUR PROJECT aimed to improve learning and academic performance in eighth grade social studies classrooms by implementing a metacognitive and mindfulness intervention.

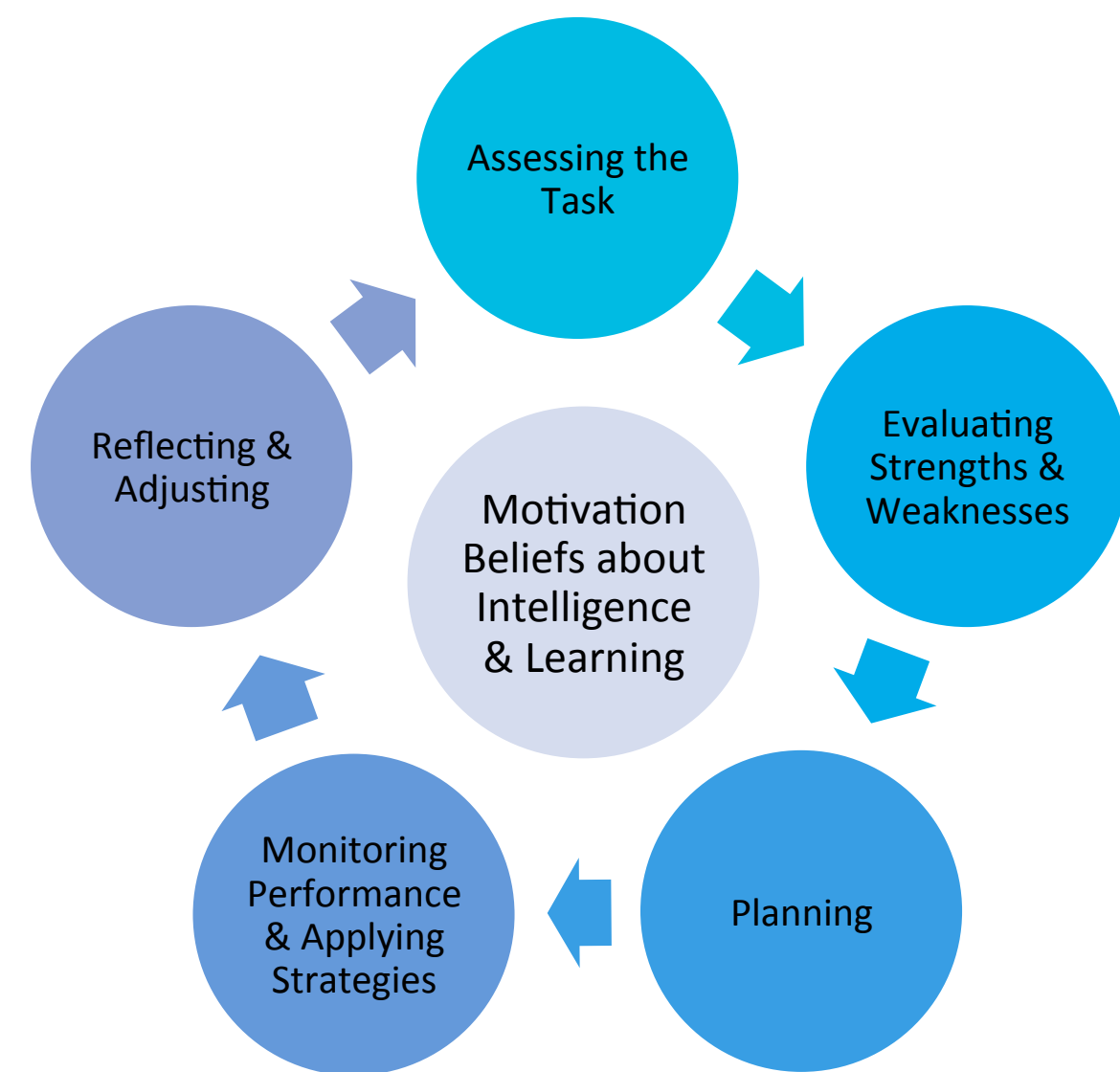
- Newly designed intervention based on group work and cognitive discussions to foster the students' knowledge and use of metacognitive strategies.
- Five eighth-grade history sections participated in the study
- Two sections were randomly assigned to the metacognition intervention (*Learn 2 Learn*), one to the mindfulness intervention (*Open Minds*), one to both the metacognition and the mindfulness intervention (*Learn 2 Learn & Open Minds*), and one was to the control condition (*College Knowledge*).

PROJECT EVOLUTION: Because this project has been part of an ongoing partnership between Trinity College and HMTCA, this year's intervention differed in a few key ways:

- The inclusion of a separate Mindfulness intervention
- Metacognitive activities that were more integrated into the classroom curriculum
- Only one teacher's classes participated in the study this year

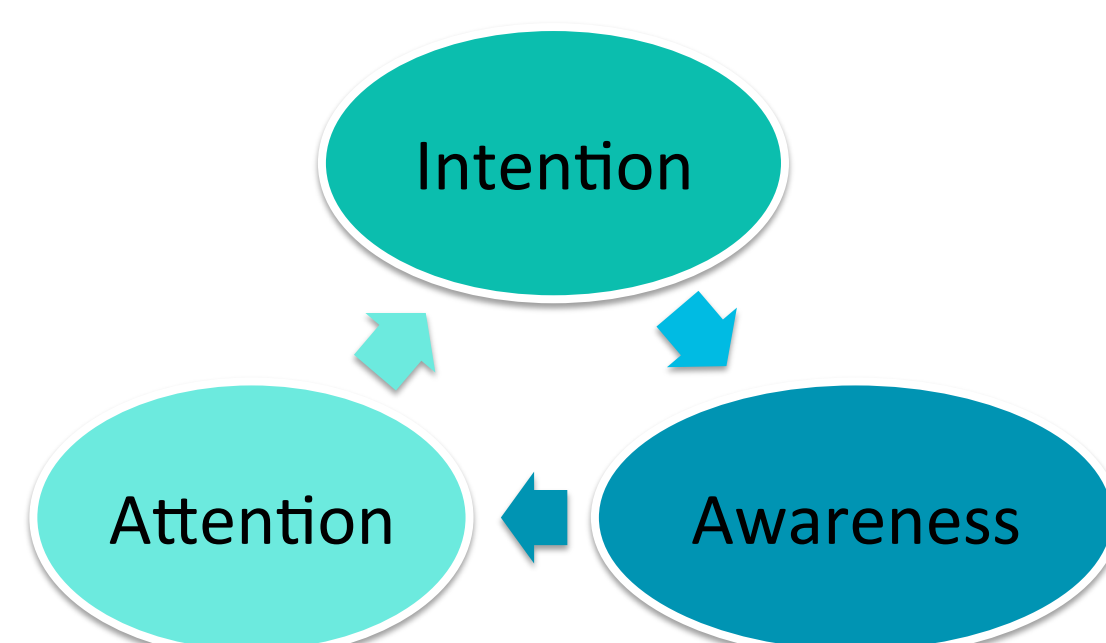
KEY COMPONENTS OF METACOGNITION

WHAT IS METACOGNITION? Comprehension of and control over one's own thinking processes

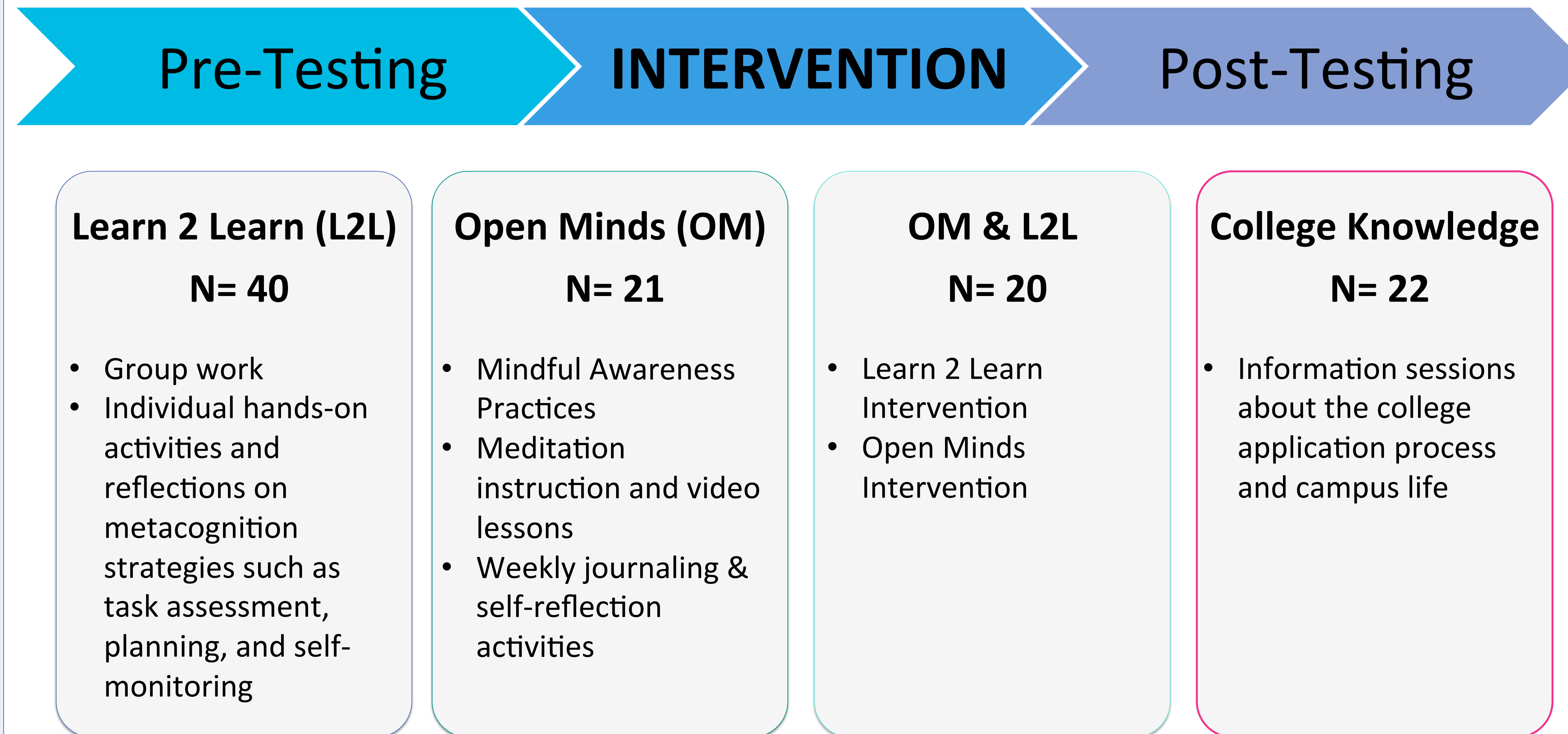


KEY COMPONENTS OF MINDFULNESS

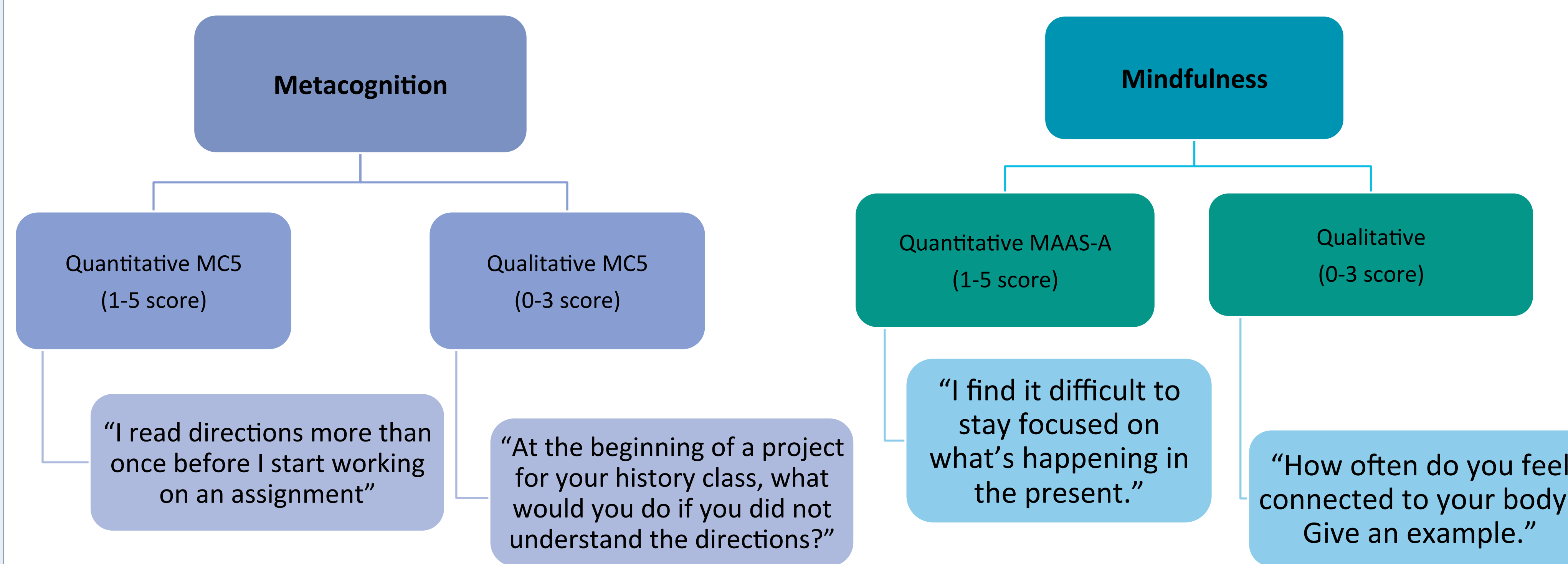
WHAT IS MINDFULNESS? focusing purposeful attention in the present moment in a non-judgmental manner



OUR EXPERIMENT



MEASURES



FINDINGS

METACOGNITION

- Metacognitive Intervention showed no effect on Quantitative MC5 or Teacher MC5;
- There was a marginally significant effect on the Qualitative MC5 ($p = .076$).
- All measures of metacognition correlated positively with grades.

MINDFULNESS

- Mindfulness Intervention showed no effect on the quantitative measure of mindfulness (MAAS-A).
- There was a significant effect on the qualitative measure ($p=.015$).
- Mindfulness Intervention showed an increase in Teacher measures of metacognition.

DISCUSSION

METACOGNITION AND MINDFULNESS

We predicted there would be the greatest improvement in metacognition for students who received both the mindfulness and metacognition interventions; this hypothesis was not supported.

Why?

→ One possible reason is that the two interventions overwhelmed students with so many tasks, and because they were not presented in an integrated fashion, students may not have seen how they complemented each other.

METACOGNITION

Contrary to our predictions, the metacognitive intervention did not increase student metacognition on the quantitative measure as was found last year.

Why?

→ This may be related to only studying students taught by one teacher, who already embeds metacognitive strategies in her teaching. The intervention may be most effective for teachers who do not employ such teaching strategies.

There was a marginally significant effect on the qualitative measure of metacognition.

Why?

→ This suggests measuring metacognition by asking qualitative questions might be a more effective assessment tool, allowing students to describe *how* they are using metacognitive strategies.

MINDFULNESS

The mindfulness intervention did not increase student mindfulness on quantitative measures.

Why?

→ The MAAS-A may be limited in its measure of mindfulness and did not capture key aspects of mindfulness taught in this intervention.

→ Students were encouraged, but not required, to practice mindfulness at home. They may need to put in more practice time for results to be significant.

There was a significant effect on the qualitative measure of mindfulness.

Why?

→ Measuring mindfulness by asking qualitative questions may give students a more nuanced way of describing their experiences that quantitative measures don't allow for.

FUTURE RESEARCH

Future studies should:

→ Include multiple teachers to account for variability in classroom instruction and to see applicability to different types of teaching styles.

→ Implement a longer intervention with greater consistency in session times.

→ Target a larger sample with more participants assigned to each intervention condition in order to decrease the possibility of results being due to chance.

→ Focus on integrating key aspects of metacognition and mindfulness to help students benefit from their connection.

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