

Trinity College

Trinity College Digital Repository

Community Learning Research Fellows

Center for Hartford Engagement and Research

2016

Enriching Student Success through Metacognitive School-Based Intervention: Following Students from Middle School into High School

Elizabeth Caporale

Follow this and additional works at: <https://digitalrepository.trincoll.edu/clrf>

Recommended Citation

Caporale, Elizabeth, "Enriching Student Success through Metacognitive School-Based Intervention: Following Students from Middle School into High School" (2016). *Community Learning Research Fellows*. 46.

<https://digitalrepository.trincoll.edu/clrf/46>



Enriching Student Success through Metacognitive School-Based Intervention: Following Students from Middle School into High School



Trinity College
HARTFORD CONNECTICUT

Elizabeth Caporale '16

Advisors: Professors Dina Anselmi & David Reuman

Community Partner: Hartford Magnet Trinity College Academy

CURRENT STUDY

Problem: Current research suggests strong links among metacognition, motivation, and academic success. However, few longitudinal studies which investigate how metacognition and motivation develop over time exist. Our research consists of two related studies regarding the development of metacognition and motivation in middle and high school students and is a follow-up to intervention studies with 8th grade students, conducted in 2013-14 and 2014-15 at Hartford Magnet Trinity College Academy.

What is metacognition? Comprehension of and control over one's own cognitive processes.

Project: Studied current 9th and 10th grade students who in 8th grade, either participated in Learn 2 Learn (experimental metacognitive training condition) College Knowledge (control condition) or neither (students did not participate in study or did not attend HMTCA 8th grade).

STUDY 1: Compared 9th and 10th grade students' metacognition and motivation.

STUDY 2: Tracked individual students' metacognitive skill and motivational development from 8th grade to either 9th or 10th grade.

COMPONENTS OF METACOGNITION & MOTIVATION



MEASURES OF METACOGNITION & MOTIVATION

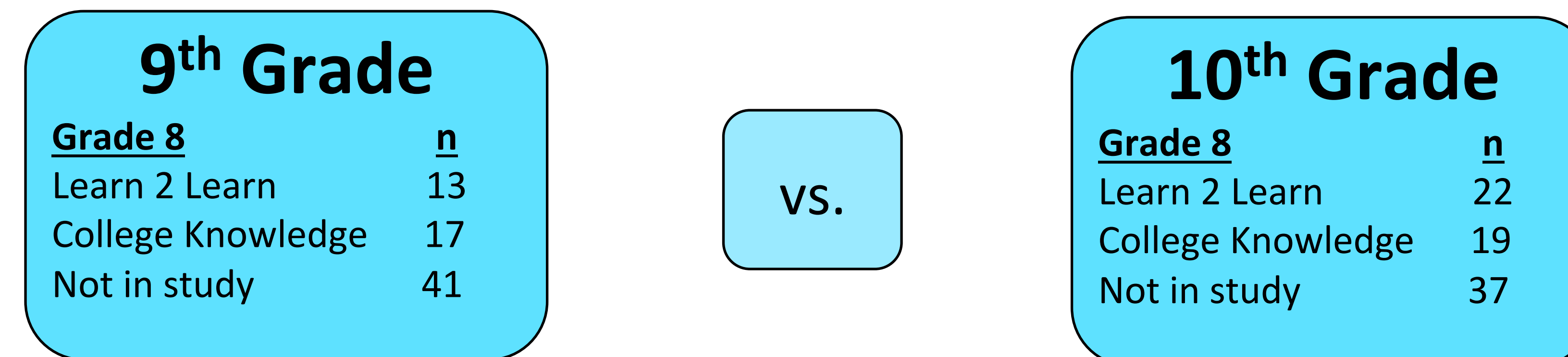
QUANTITATIVE METACOGNITION 5 (MC5)

"I change my ways of completing an assignment when I realize that they are not working"
<1> Never; <5> Always

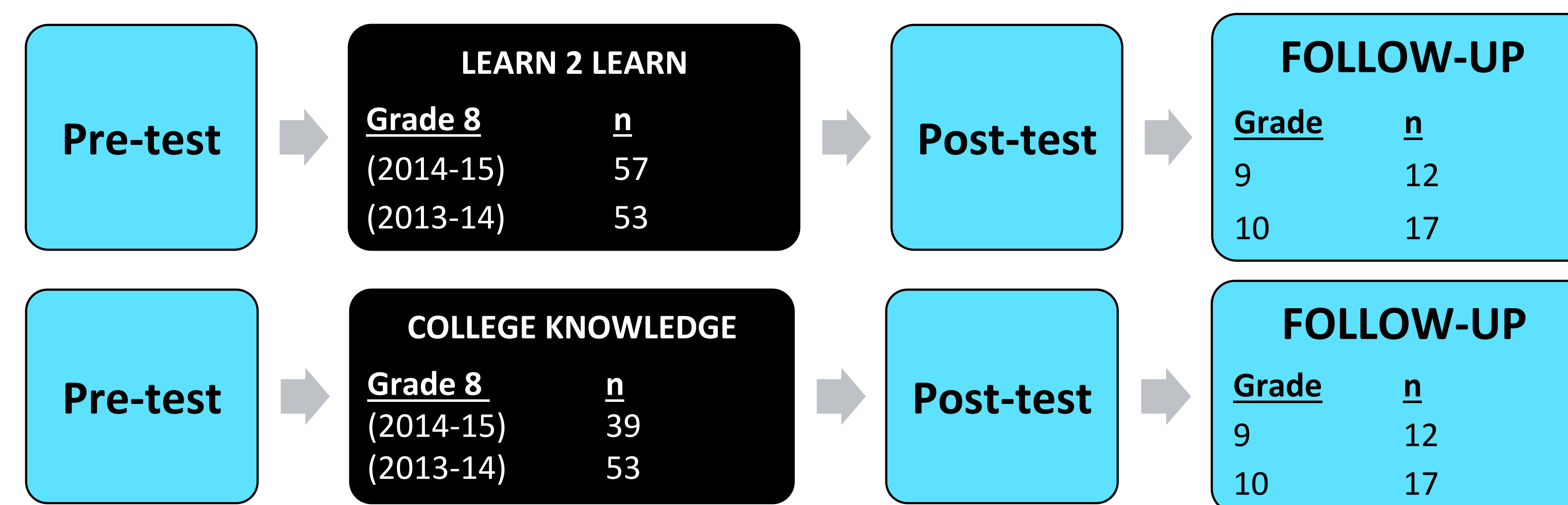
MOTIVATION		
SELF-EFFICACY "I expect to do well in this class" <1> Not at all true of me <7> Very true of me	ACHIEVEMENT VALUE "In general, I find working on history assignments..." <1> Very boring <7> Very interesting	ABILITY BELIEFS "You can always greatly change how intelligent you are" <1> Strongly agree <6> Strongly disagree

EXPERIMENTAL DESIGN

STUDY 1: CROSS-SECTIONAL



STUDY 2: LONGITUDINAL



CONCLUSIONS & RECOMMENDATIONS

Based on the findings of our current study:

- There are developmental differences among students in the 8th, 9th and 10th grades
- There appears to be a general decrease in metacognition and motivation as middle and high school students advance in grade level
- Different interventions may be needed for students at different grade levels in order to have significant, lasting effects

Limitations:

- Attrition occurred in both studies, due to 8th grade students leaving the Hartford Magnet school system to attend high school elsewhere
- A large proportion of students did not complete both questionnaires, rendering their data longitudinally unusable (Study 2).

Recommendations for future study:

- Future research should focus on replicating and analyzing the characteristics of effective metacognitive interventions
- Additional longitudinal studies should explore how metacognition and motivation develop in adolescence
- Future exploration of the reasons for developmental differences in motivation between middle and high school students

ACKNOWLEDGEMENTS

I would like to thank my academic advisors Professors Anselmi & Reuman, our community partners at Hartford Magnet Trinity College Academy; specifically teachers Ms. Avery and Mr. Coonce-Ewing, research assistants Evan Scollard and Kata Sik, as well as Prof. Clark and all CLI members for their valuable feedback and support. (References available upon request)

METACOGNITION & MOTIVATION

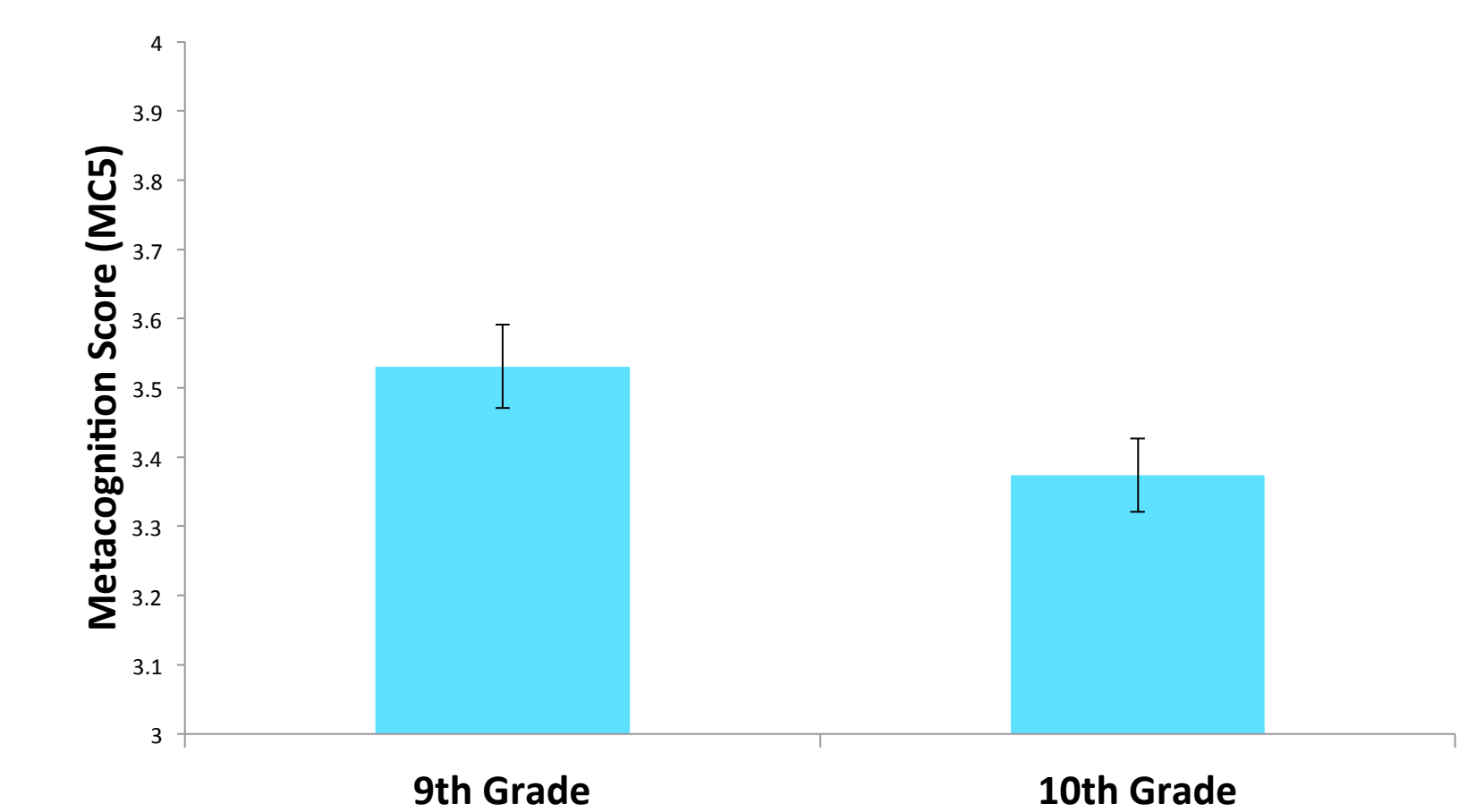
STUDY 1: Hypotheses

- 10th graders will score higher on the MC5 and motivation scales than the 9th graders
- Those who participated in Learn 2 Learn in the 8th grade will score higher on the MC5 and motivation scales than 9th or 10th graders who were in College Knowledge or not in the study in the 8th grade

STUDY 1: Findings

- Contrary to our predictions, 9th graders scored higher on the MC5 than 10th graders ($p = .05^*$)
- No condition effect was found; Those who participated in Learn 2 Learn in the 8th grade did not differ on the MC5 or motivation scales than students in the other 8th grade conditions ($p = .32$)

Grade Level Differences in Overall Metacognition (MC5)



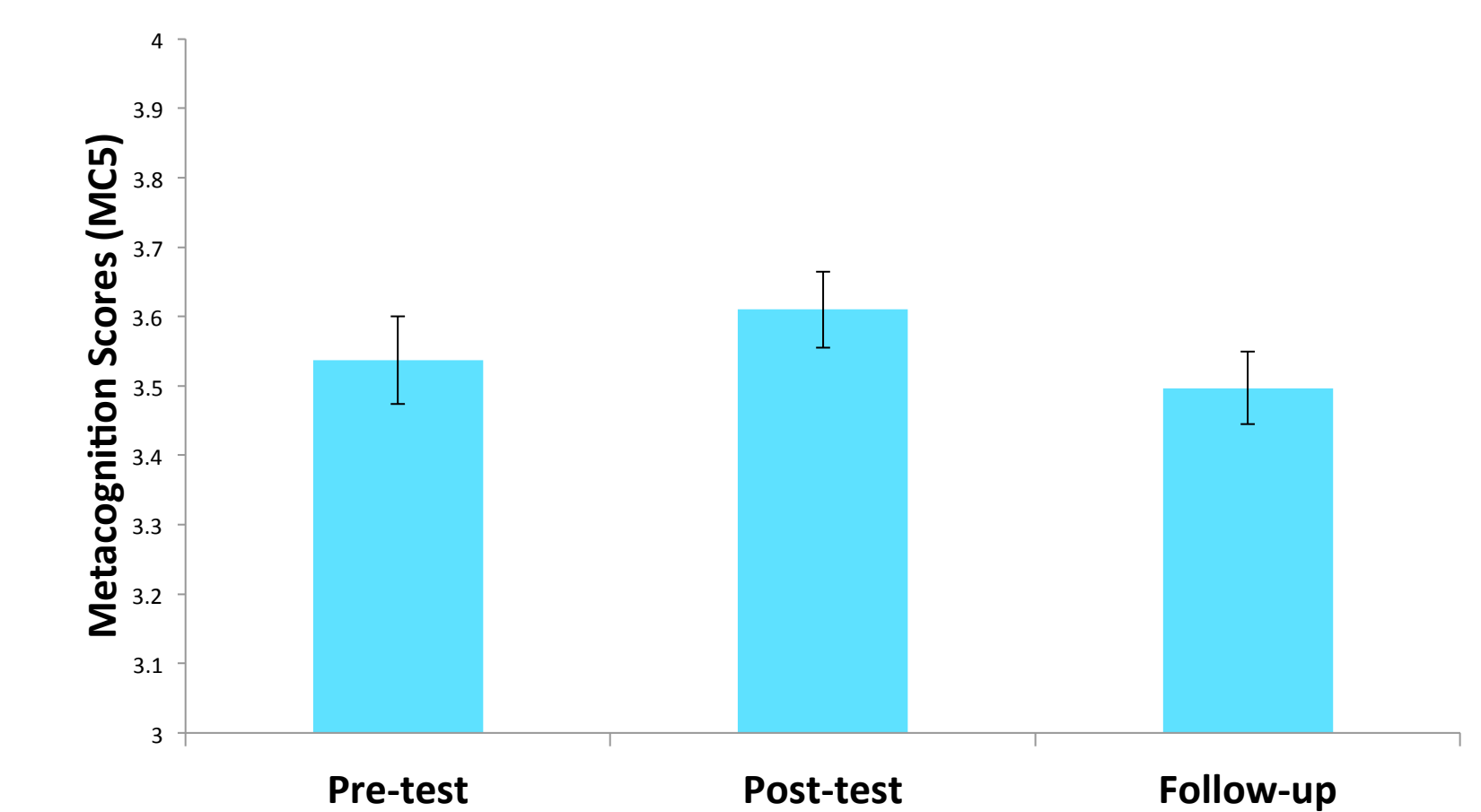
STUDY 2: Hypotheses

- Regardless of 8th grade condition, students will score higher on MC5 and motivation scales as they move up to 9th or 10th grade
- There will be long term metacognition and motivation benefits for those students who participated in Learn 2 Learn in the 8th grade

STUDY 2: Findings

- Students' MC5 scores decreased with time, regardless of grade level or 8th grade metacognition condition ($p = .04^*$)
- Similar to findings of study 1, 9th graders have higher levels of metacognition, scoring higher on the MC5, than 10th graders ($p = .06$)
- The MC5 correlated with all motivational variables; most strongly with self-efficacy (see table on right) ($p < .05^*$)

Differences in Overall Metacognition Scores (MC5) by Time



Correlations: Metacognition and Motivational Variables

	Pre-test	Post-test	Follow-up
Self-efficacy	.61***	.61***	.54***
Ability Beliefs	.33**	.37***	.30*
Values	.56***	.48**	.31*

CLI RESEARCH FELLOWS SPRING 2016