



CIRCLE

The Center for Integrative Research
on Cognition, Learning, and Education

Evaluation of Active Learning with “Clickers”

iTeach

January 13th, 2016

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Center for Integrative Research on Cognition,
Learning, and Education (CIRCLE)

Presentation Overview

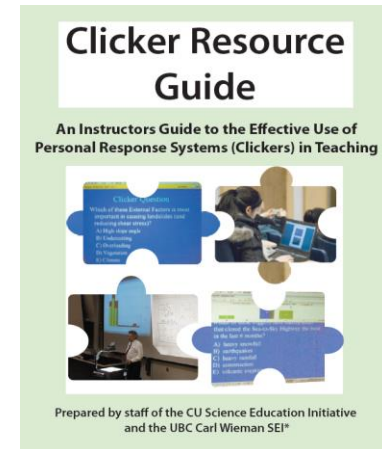
- Clicker Overview
- Background/ clickers at WU
- Current Evaluation
- Future Directions and Discussion

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Why use clickers?

- Active learning has positive effects on students and their learning
- Caldwell (2007): clickers can be used to...
 - Increase interaction/participation/discussion
 - Understand student attitudes/opinions
 - Guide thinking
 - Practice problem solving
 - Formative assessment
 - Summative assessment



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AAU STEM Education Initiative

- President's Council of Advisors on Science and Technology (PCAST) report (2012)

- Need more scientists and engineers

PCAST Report Recommends Action to Increase Number of STEM Graduates

February 2012

The President's Council of Advisors on Science and Technology (PCAST) issued a report on February 7 with five recommendations to President Obama to increase the number of STEM graduates by one million in the next decade to meet projected employment needs. These graduates would fill not only traditional STEM jobs but also "STEM-capable" jobs, or non-STEM positions that require STEM skills.



- Active learning as a way to retain more STEM majors
 - Benefits all students (Freeman et al., 2014)
- Many courses at WU are implementing more active learning via clickers



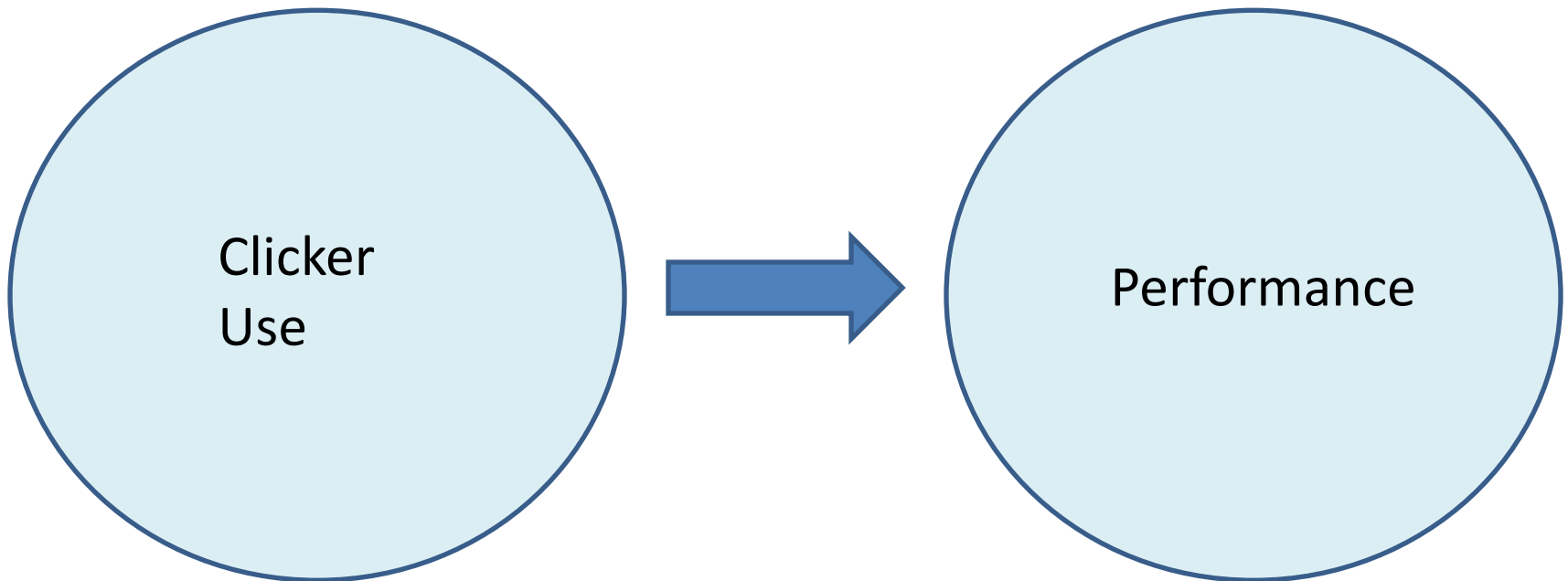
Clicker Use in Introductory Science Courses at Washington University

- Chemistry I
- Chemistry II

- Biology I

- Physics I
- Physics II

Clicker Use predicts performance

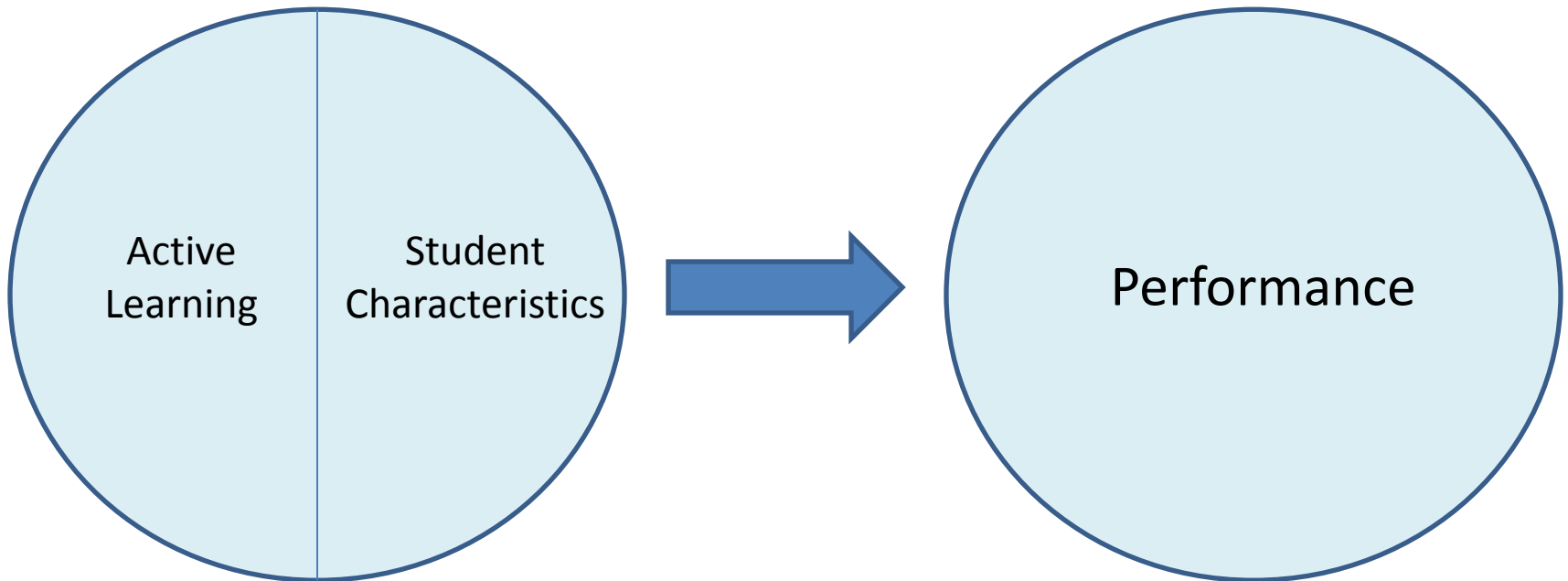


Limitations of Literature

- Literature consistently shows positive clicker effects/associations with performance
- However the majority of these studies are open to alternative explanations
- We aimed to analyze association between clicker use and performance, controlling for student characteristics in order to isolate the relationship between clicker use and performance

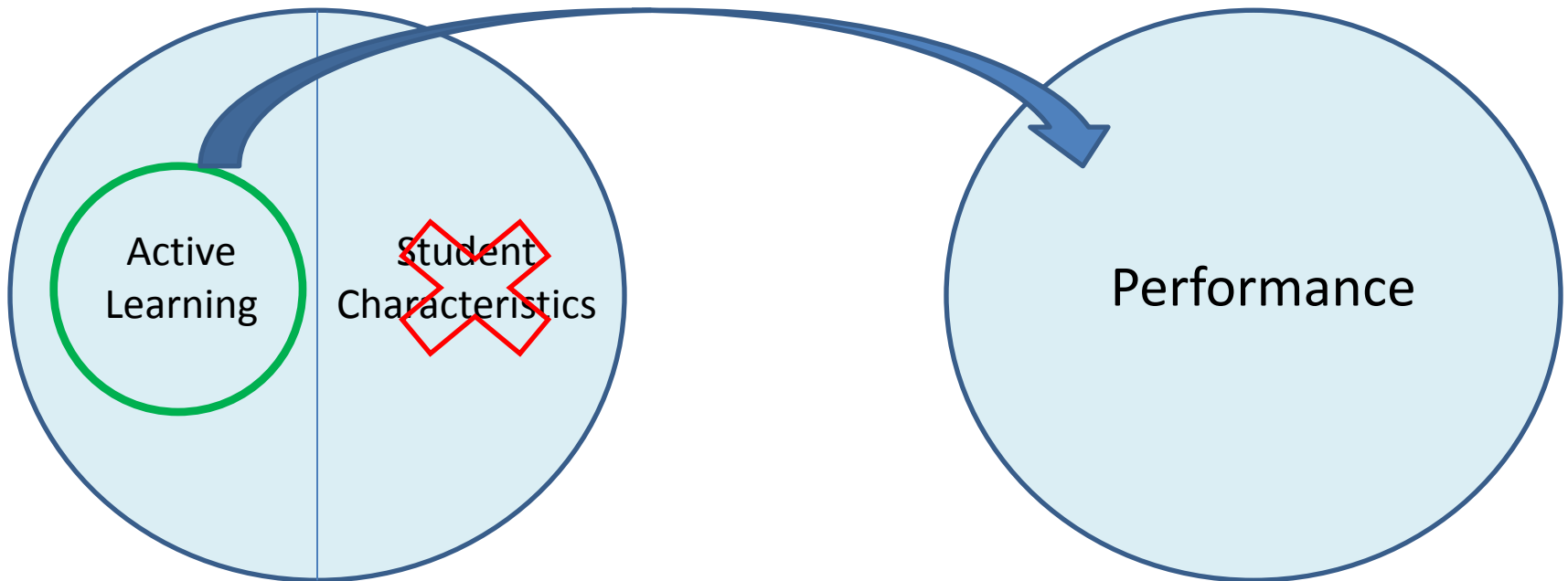
BUT...

Clicker Use



The Crucial Relationship

Clicker Use



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The remainder of the presentation featured unpublished data that has been removed from the online version of the slides.

*Questions? Contact Erin Solomon
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Acknowledgments

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