



**2020 Education Innovation and Research (EIR) Project Directors
and Evaluators Technical Assistance Meeting**

Virtual Meeting | October 21–23, 2020

Using Your Evaluation Results to Adapt the Program and Prepare for Other Funding Requests

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Mathematical Reasoning with Connections - i3 Development Phase Grant

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Agenda

- Mathematical Reasoning with Connections Grant Background
- 2017-18 to 2018-19 Evaluation and Modifications
- 2018-19 to 2019-20 Evaluation and Modifications
- 2019-20 to 2020-21 Evaluation and Modifications
- Using Data to Prepare for Additional Concurrent and Future Funding

Mathematical Reasoning with Connections

- 4th Year Advanced Mathematics course designed to prepare students for the expectations and rigor of college Mathematics courses
- Reinforces and builds on Mathematical topics and skills developed in IM 1 - 3 or Algebra I/II and Geometry
- Focuses on conceptual development to promote procedural fluency
- Incorporates and reinforces the Standards for Mathematical Practices in every activity
- Rigorous, challenging, and provides opportunities for productive struggle

2017-18

- Used CA EAP released items for EOY Assessment
- Only did post student surveys
- Pre/Post teacher surveys
- Teacher fidelity surveys
- PD evaluations

2018-19 Modifications

- Moved to PreCalc Concept Assessment
- Student pre- and post-surveys
- Student interviews
- Analysis included review of first-year versus second-year
- Analysis included how much content was taught
- Curriculum content, sequencing, and layout changed

2018-19

- PreCalc Concept Assessment
- Pre/post student surveys & post interviews
- Pre/post teacher surveys & fidelity surveys
- Analysis of first-year versus second-year
- Analysis included how much content was taught
- Curriculum content, sequencing, and layout changed

2019-20 Modifications

- No EOY assessment, no state assessments
- Added post surveys for control teachers
- Pre/post student surveys & post interviews
- Pre/post teacher surveys & fidelity surveys
- Trained i3 MRWC teachers/coaches to lead PD
- Moved PD evaluations to online
- Review PD evaluations with presenters for real-time improvement
- Analysis of placement data
- Added training for Second Year and Beyond teachers/coaches

Additional Second Year and Beyond Training

■ Student Quotes

- *I also really liked how our teacher was right there learning with us...So if we had a question, and we asked them [the teacher] and they didn't know all of us as a class would just come together and focus on this one problem, making sure that everybody understood every part of it, which was definitely really helpful because it made me feel like I wasn't alone.*
- *Ms. M she's learning with us, you know. Like, she's open minded too and she understands that, just like, if we don't understand, like she could always like help us and like just get tools to help us.*
- *...she [the teacher] brings back like more material, new material, just how she learned it, and how she might have felt a little bit confused or something, that's how we feel as well. So just keep in mind that just like you guys are learning, we're learning as well. And just like teach us your insights and teach us how you view things*

■ Teacher Reflections

- *More training!*

■ Additional Grant Funding

- *Repurposed Growing Inland Achievement funds*

2019-20

- No EOY or state assessment
- Added post surveys for control teachers
- Pre/post student surveys & post interviews
- Pre/post teacher surveys & fidelity surveys
- Trained i3 MRWC teachers/coaches to lead PD
- PD Evals online and reviewed for PD improvement
- Analysis of placement data
- Added training for Second Year and Beyond teachers/coaches

2020-21 Modifications

- Summer PD moved to virtual
- Use prior grades as baseline measure
- PreCalc Concept Assessment will be available online or in-person
- Pre/post student surveys & post interviews
- Pre/post teacher surveys & fidelity surveys
- Training i3 MRWC teachers/coaches to lead PD
- Placement Data analysis continued
- Second Year and Beyond training continuing

2018-19 Pre-Calc Concept Assessment Performance



The MRWC group had an average score of 6.3 or 31% correct



Comparison students (Calculus removed) scored 4.9 or 24% correct

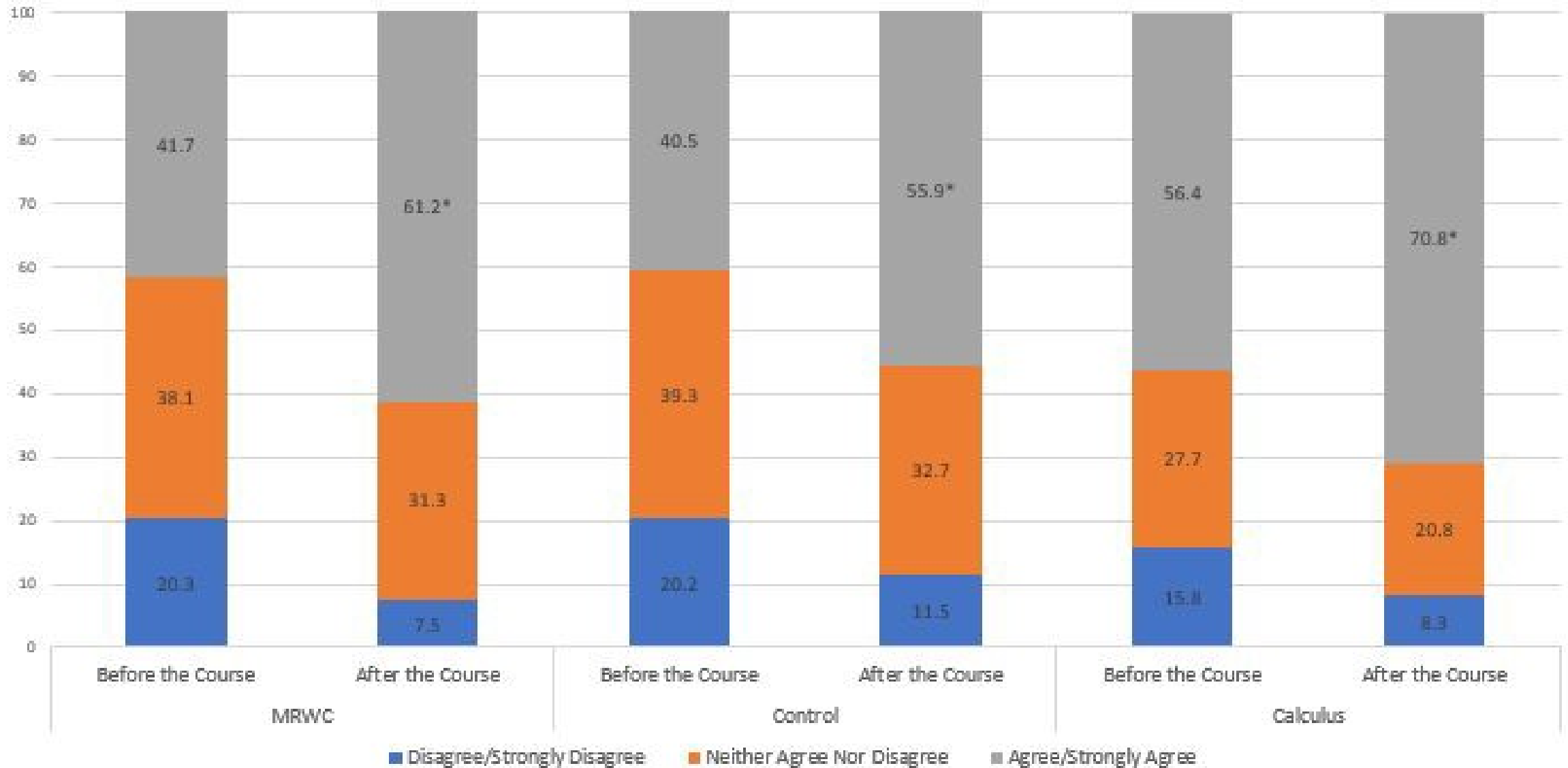


To determine if MRWC student performance was significantly different, an independent samples t-test was performed.

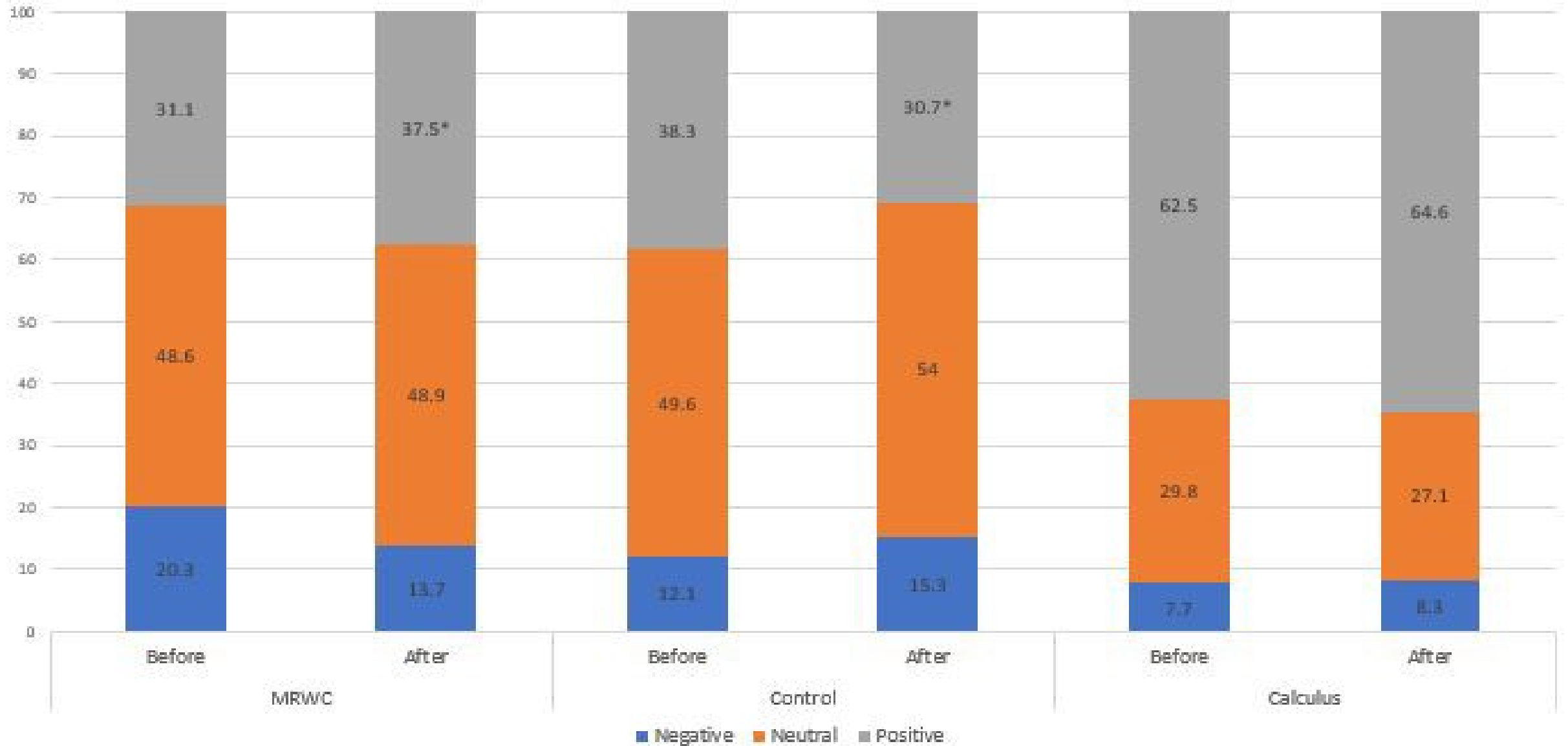


The t-test was associated with a statistically significant effect size, $t(2,672) = 7.545, p = 0.000$

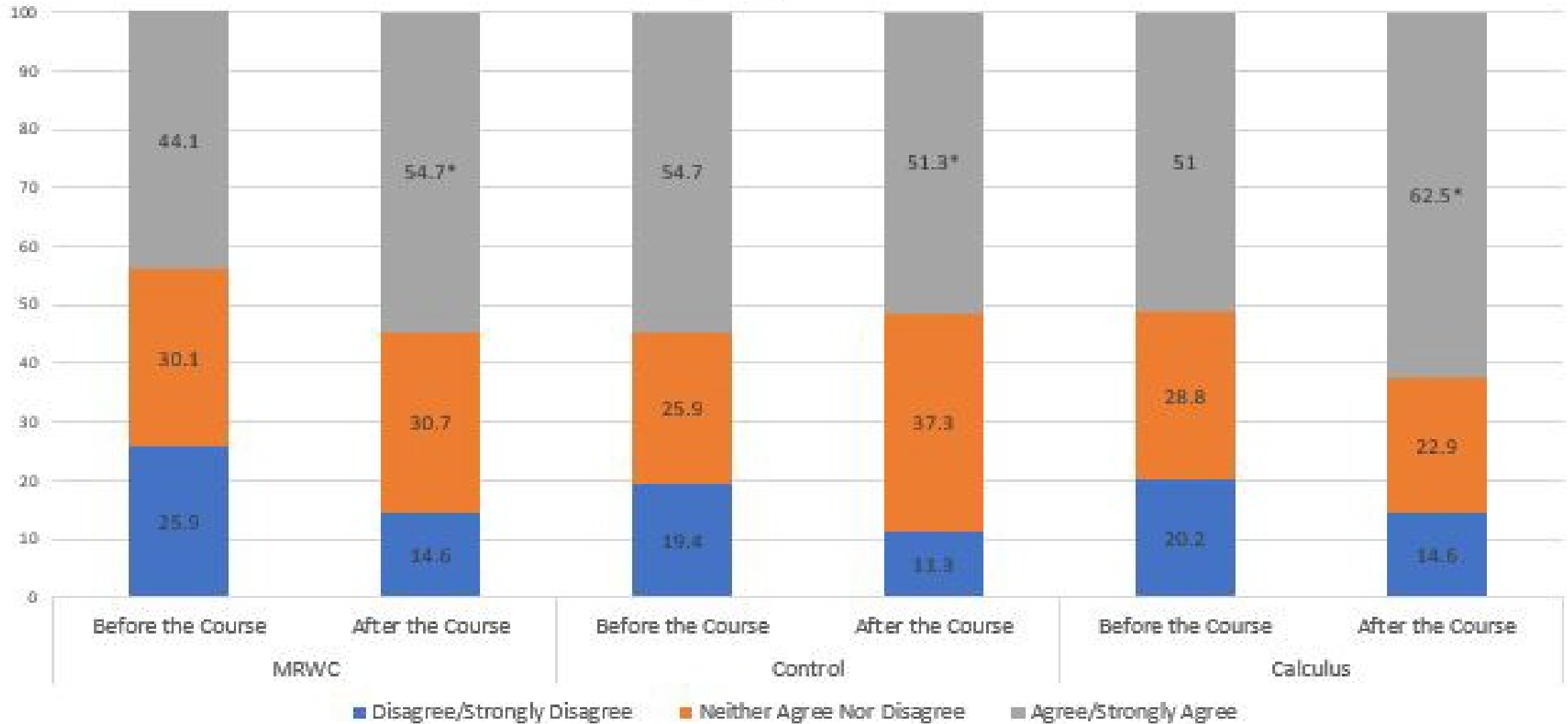
I believe I am prepared for college-level mathematics courses (2019-20 Question Only)



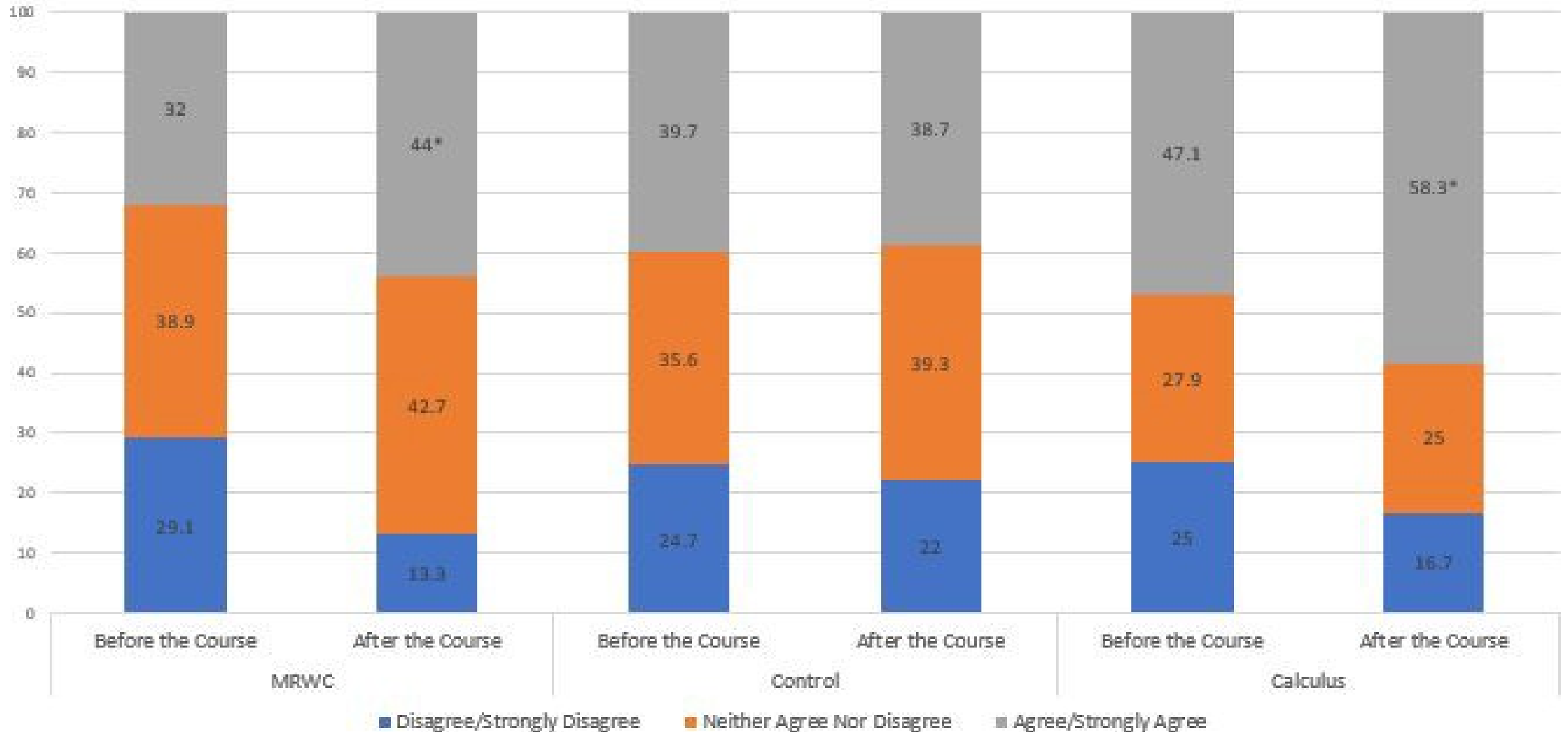
2019-20 Course Overall Attitude Toward Mathematics (Before/After the Course)



2019-20 I can think of many ways I can use math outside of school



2019-20 I believe I have a good mathematics vocabulary



Using Data to Prepare for Concurrent and Future Funding

- Don't wait
- Be Open
- Be flexible

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