



# Enhancing Online Communities through a Mathematical Writing Intervention

PLC PRESENTATION



# Researchers

Hello, how are you?

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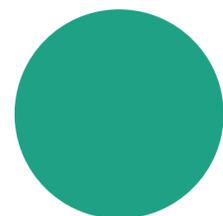
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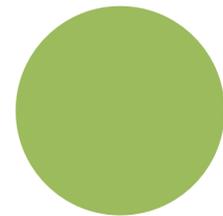


# AGENDA

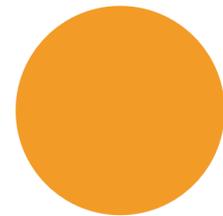
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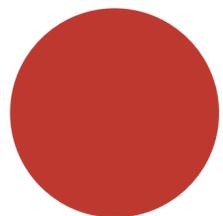
**Introduce Project**



**Background & Context**



**Research Plan**



**Lessons & Moving Forward**



# INTRO

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“ Writing plays a significant role in the learning of advanced mathematics and in advanced mathematics ”

## SPECIFIC AIM

To observe how students' beliefs about mathematics change after taking a writing intensive (intervention) college algebra course, their satisfaction toward the experience using writing to learn mathematics, and their degree of satisfaction with the experience of an online community through peer feedback (collaboration) with regards to the writing.

## PURPOSE

If writing is to be used as an educational tool in mathematics, then it is important to get the students' perspective in how the assignments are done and what insights they gained or did not gain from the assignments (& peer-to-peer collaborations). This information can ultimately be used by mathematics educators to improve the instruction of mathematics and the mathematical achievement of students in online mathematics courses.



# Background & Context

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## Writing + Learning In Mathematics

Freeman, Higgins, and Horney (2016)

## Low Implementation

Kosko (2016)

## Increase: Learning, Belonging, & Persistence

Schwehm, Saxton, and Stuckey (2017)

## Community + Peer Support

Byrd's (2016)



# Research Questions



**R1: How do students' beliefs about mathematics change after taking a writing intensive (intervention) college algebra course?**

**R2: What degree of satisfaction do students' experience with the use of writing (learning intervention)?**

**R3: What degree of satisfaction do students' experience with an online community through peer feedback (collaboration) with regards to the intervention?**



# Methodology & Evaluation



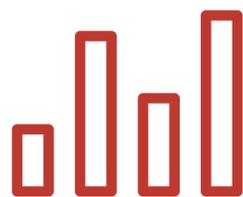
## POPULATION

- College Algebra @ UNTD



## QUALITATIVE

- Mid & Post Semi-structured Interviews



## QUANTITATIVE

- Pre & Post Surveys
- *Concepts of Mathematics Inventory*



## DESIGN

- Canvas
- Random Group Assignments
- 1-2 Weekly Writing Assignments
- Peer Engagement



# Lessons Learned

Moving Forward

## HESITATION

- Build Networks
- Critical Thinking
- Low Self-Efficacy
- Writing  $\neq$  Math

## ORGANIZATION

- Pre-Video Introduction



## CONTROL GROUP

- Limitations
  - Face to Face vs Online Course
  - Course Offering

## INTERVIEWS

- Introduce Dr. Dawson Earlier
  - Guest Lecture



Thank you

## References

Byrd, J. C. (2016). Understanding the online doctoral learning experience: Factors that contribute to students' sense of community. *Journal of Educators Online, 13*(2), 102-135.

Freeman, B., Higgins, K. N., & Horney, M. (2016). How students communicate mathematical ideas: An examination of multimodal writing using digital technologies. *Contemporary Educational Technology, 7*, 281-313.

Kosko, K. W. (2016). Writing in mathematics: A survey of K-12 teachers' reported frequency in the classroom. *School Science and Mathematics, 116*(5), 176-285.

Schwehm, J., Saxton, J., & Stuckey, A. (2017, Mar). Promoting engagement and community in online courses: It's all about the writing. Paper presented at the Annual Meeting of the Adult Higher Education Alliance, Orlando, FL.

