

Efficacy of a Mindfulness Meditation Intervention to Reduce Math Anxiety in PSYC 301: Statistics for Psychological Research

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Pedagogical Problem

Students are often intimidated by the content of the required PSYC 301: Statistics for Psychological Research course. They can also bring previous negative experiences with mathematics or math anxiety to the class. The emotional and cognitive load of this anxiety and negative self-talk can disrupt the learning process.

Behavior-Based Interventions

- Practice focusing attention: Mindfulness Meditations
 - Brief 3-minute meditations in class and longer, 10-minute meditations outside of class
- Interrupting negative self-talk and anxiety: Power-Up Songs
 - Students identified three songs that made them happy, energized, and feeling powerful and were to play these anytime they began NST or feeling anxious
- Increasing self-compassion and perceived support
 - Student reflection writings, focusing on self-growth in knowledge and skills for the class
 - For each exam, student wrote the initials of someone they felt supported by in the upper corner of their test

Did This Help Students?

- That isn't yet clear – this will have to be considered a pilot study
 - While a number of interventions were completed throughout the semester, several were not as consistently implemented (instructor developed a case of 'imposter syndrome')
- Course evaluations were the most positive ever received for this course (both in terms of the quantitative analysis and the free-write responses from students)
- A more thorough roll-out will occur in Fall 2017, with post-test measures conducted at the end of the semester.

Measures: Self-Report

- Academic Self-Efficacy Scale (Shank & Cotton, 2013): Beliefs about one's ability to successfully perform a given academic task or behavior
 - 6-item measure ($\alpha = .79$); Participants indicate how often they can, for example: concentrate on school subjects, figure out how to do the hardest classwork, motivate myself to do schoolwork.
- Math Self-Concept, Self-Efficacy, and Anxiety (Lee, 2009)
 - A 15-item measure structured with three subscales: Math Self-Concept (5 items, $\alpha = .898$), Math Self-Efficacy (6 items, $\alpha = .93$), Math Anxiety (5 items, $\alpha = .973$)
- Self-Compassion Scale (Ness, 2003)
 - A 26-item measure structured with six subscales: Self-Kindness (5 items, $\alpha = .822$), Self-Judgment (5 items, $\alpha = .867$), Common Humanity (4 items, $\alpha = .889$), Isolation (4 items, $\alpha = .841$), Mindfulness (4 items, $\alpha = .696$), Over-Identification (4 items, $\alpha = .854$)
- Negative Self-Talk Scale (Brinthaup, Hein & Kramer, 2009)
 - A 16-item measure structured with four subscales: Self-Criticism (4 items, $\alpha = .804$), Self-Reinforcement (4 items, $\alpha = .872$), Self-Management (4 items, $\alpha = .672$), Social Assessment (4 items, $\alpha = .869$)
- Perceived Stress (Cohen, 1983)
 - 14-item measure ($\alpha = .782$); Participants indicate how often in the last month they, for example: felt that you were unable to control the important things in your life, been upset because of something that happened unexpectedly, and felt able to control the way you spend your time (reverse-scored)

Thank you to my students, UWS colleagues, and CETL for invaluable support during this project.