

MATH 1930: MATHEMATICS EXPLORATIONS

Mathematics Explorations is a liberal arts math class that satisfies the general education requirement at University of Wisconsin-Platteville. It can best be described as a math appreciation course.

TYPICAL STUDENT

- Taking this course to meet the math general education requirement.
- No specific math course required for their major.
- Possible major: Agricultural Education, English, Fine Arts, Health & Human Performance, History, Music, Political or Social Science

TOPICS

- Problems and Solving
- Mathematics of Patterns: Number Theory
- Mathematics of Infinity: Cantor’s Theory of Sets
- Mathematics of Connection: Graph Theory

WHAT IS THE CASE

Does UW-Platteville’s liberal arts math class have a positive impact on attitude, self-efficacy, and growth mindset in regards to mathematics?

ASSESSMENT

- MSEAQ: Math Self-Efficacy and Anxiety Questionnaire designed by Dianne M. Kay (29 questions) (May, 2009).
- Self-designed Mindset questionnaire (11 questions).
- “How do you feel when you are presented with a math problem to solve?”  
0 - Not Confident at all, 5 - Very Confident
- Pre-test free-response questions:
  - Why did you register for this course?
  - What is math?
- Post-test free-response questions:
  - What advice would you give to future students registered for this course?
  - What is math?

RESULTS

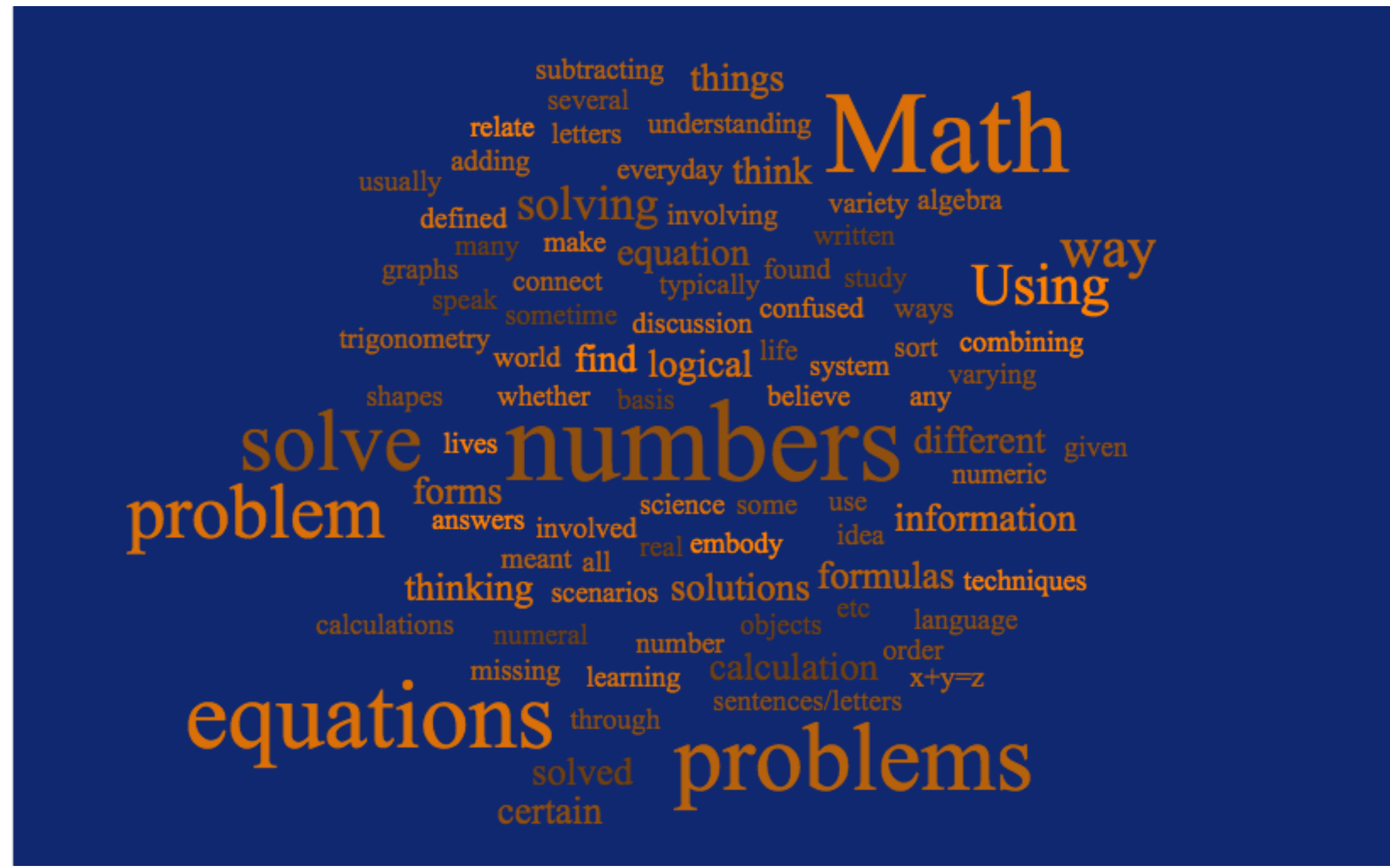
Calculus:	Pre-test MSEAQ	Post-test MSEAQ	Pre-Test Mindset	Post-test Mindset
Average	3.704927974	3.564315569	3.793801653	3.810950413
Median	3.779885057	3.6	3.727272727	3.772727273
Math Explorations:	Pre-test MSEAQ	Post-test MSEAQ	Pre-Test Mindset	Post-test Mindset
Average	3.198227969	3.143247126	3.548958333	3.545454545
Median	3.116666667	3.1	3.636363636	3.681818182

- “How do you feel when you are presented with a math problem to solve?”

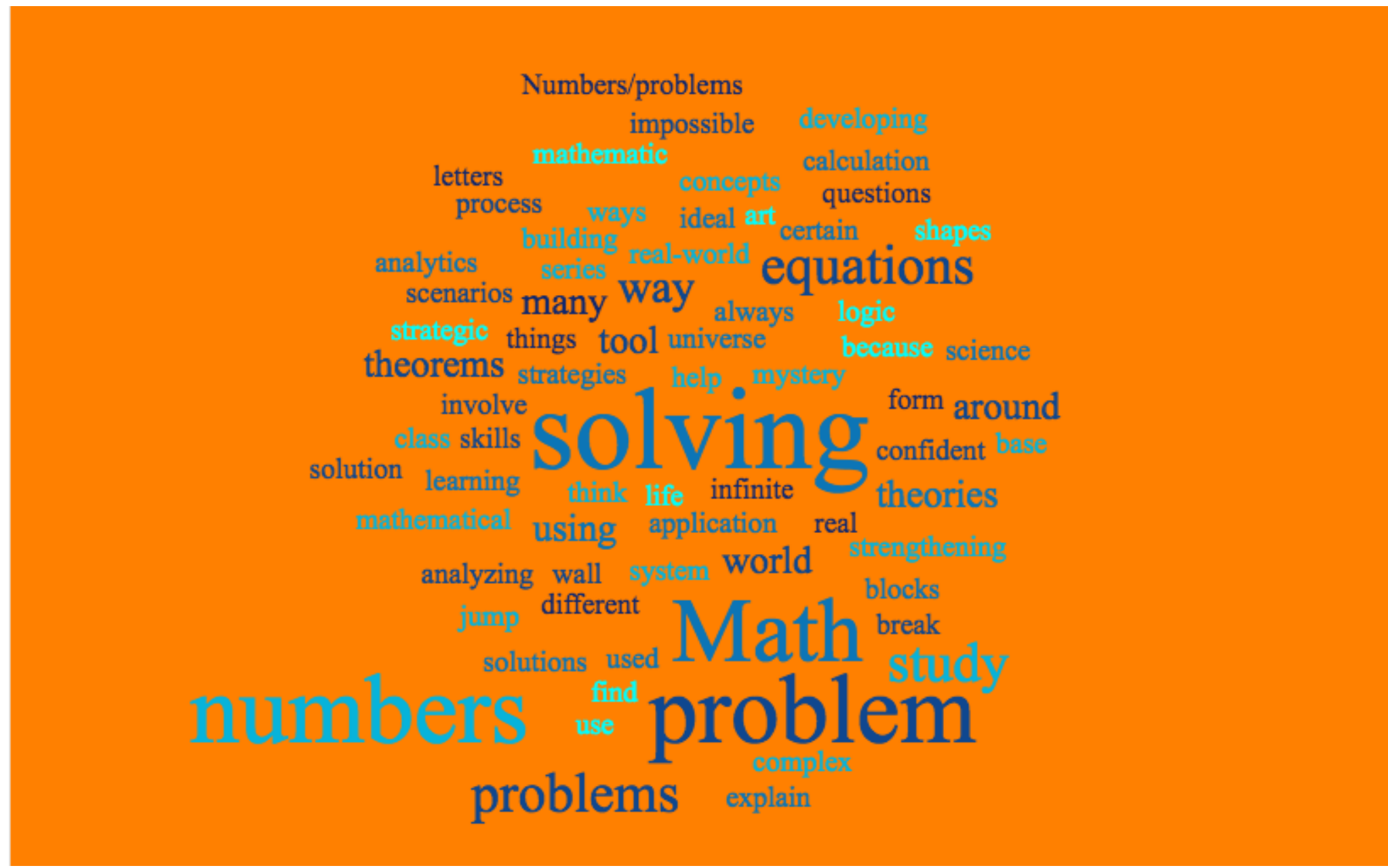
Calculus:	Pre-test	Post-test		Math Explorations:	Pre-test	Post-test
Average	3.613636	3.5		Average	2.708333	2.875
Median	4	4		Median	2.5	3

- The sample size was too small to obtain any statistical significance with paired t-tests.

WHAT IS MATH? [PRE-TEST]



WHAT IS MATH? [POST-TEST]



FUTURE PLANS

- Continue giving the pre- and post-test assessment for each section Mathematical Explorations and design intentional growth mind-set interventions to implement next time I teach the course.

ACKNOWLEDGMENTS

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