Increasing Online Students’ Retention/Success Rates by Changing Mindset

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Affective Factors

- Krathwohl, Bloom, and Masia
  - a.k.a. Krathwohl’s Taxonomy
  - Five major categories
    - Receiving phenomena
    - Responding to phenomena
    - Valuing
    - Organization
    - Internalizing values (characterization)
Affective Factors

● Attributes focus for project
  ○ Beliefs
  ○ Values
  ○ Attitudes
  ○ Emotions (feelings)
Rationale for Classroom Study

- Students’ attitudes toward their mathematical ability affects their performance in the mathematics classroom
  - A positive attitude results in:
    - A stronger mathematics skill set
    - Higher student retention
    - Higher success rates
  - Students with low self-esteem or low self-expectations:
    - Become frustrated easily
    - Struggle to succeed
Design and Implementation

- First Day Survey
  - Mathematics attitudes
  - Student expectations
  - Demographics

- Positive Thoughts
  - Write down positive word(s) about math class every day

- Last Day Survey
  - To determine outcomes
Semester Observations

- Increased positive attitudes toward mathematics in general
- No students dropped during the semester
- Students came prepared for every class
  - More homework completed
  - Read ahead for each class
- Everyone contributed to the class every day
- Self-esteem improved in general
Successful Completion in the Face-to-Face Classes – Spring 2014

- Pass Rates
  - CCBC – MATH 081 Spring 2014: ~48.6%
  - CCBC – MATH 083 Spring 2014: ~51.1%
  - MATH 081 9D1 Spring 2014: 100%
  - MATH 083 DLA Spring 2014: ~65.2%
Successful Completion in the Face-to-Face Classes – Fall 2014

- Pass Rates
  - CCBC – MATH 082 Fall 2014: ~53%
  - MATH 082 9D1 Fall 2014: ~92.3%
  - MATH 082 DNA Fall 2014: ~56.5%
Successful Completion in the Face-to-Face Classes – Spring 2015

- Pass Rates
  - CCBC – MATH 081 Spring 2015: ~54%
  - CCBC – MATH 083 Spring 2015: ~52.9%
  - MATH 081 DLA Spring 2015: ~62.5%
  - MATH 081 DMA Spring 2015: ~57.9%
  - MATH 083 9D1 Spring 2015: 92.9%
Comparison of Completer Success Rates in My Face-to-Face Classes by Semester

- Spring 2014
  - 80% of completers passed

- Fall 2014
  - 75.8% of completers passed

- Spring 2015
  - 85% of completers passed
Rationale for Focus on Online Students

- Historically, online mathematics classes have low success and retention rates
  - Students tend to procrastinate
  - Students lack enthusiasm about learning
- Effects of changing students’ mindsets to a more positive outlook toward mathematics (as well as toward themselves)
  - May increase student retention and success rates
  - May decrease students’ test anxiety levels
  - May increase students’ overall self-esteem
- Focus on the affective characteristics of success
  - Powerful and effective tools necessary to succeed in life
Project Goals

- Students will
  - Foster a positive attitude toward mathematics
  - Increase retention and success rates in online mathematics classes
  - Become more confident in their ability to use mathematics
    - Possibly positively affect other areas of study
    - Attitude positively affect others (peers, children, co-workers, etc.)
  - Increase overall self-esteem
Design and Implementation

- Collection of baseline data on students’ attitudes toward mathematics, self-esteem, and previous mathematics performance history
- Weekly submission of something positive about themselves and/or their experience with mathematics via various prompts
  - Some planned well in advance
  - Others based on student feedback/postings
  - Feedback on assessments highlighting the positive aspects of student performance
- Personal outreach to students (individually) as appropriate for positive reinforcement
- Collection of feedback at end of semester reflecting changes in attitude and performance
- Retention/success rates for the class compared to comparable sections
- Comparison to previous semesters’ performances for online sections of the same course
Completion Rates in the Online Classes

- Online Course Completion Rates
  - CCBC – MATH 081 Spring 2015: ~55.9%
  - CCBC – MATH 083 Spring 2015: ~70.4%
  - CCBC – MATH 163 Spring 2015: ~76.1%

- My Online Class Completion Rates
  - MATH 081 WD1 Spring 2015: ~38.1%
  - MATH 083 WD2: 70%
  - MATH 163 WD1: ~60.9%
Completer Success Rates in the Online Classes

- Online Course Pass Rates
  - CCBC – MATH 081 Spring 2015: ~38.0%
  - CCBC – MATH 083 Spring 2015: ~45.8%
  - CCBC – MATH 163 Spring 2015: ~60.9%

- My Online Class Pass Rates
  - MATH 081 WD1: 62.5%
  - MATH 083 WD2: 100%
  - MATH 163 WD1: ~85.7%
Comparison of Overall Success Rates in My Online Classes by Semester

- **Spring 2014**
  - 44.05% of completers passed

- **Fall 2014**
  - 53.09% of completers passed

- **Spring 2015**
  - 45.31% of completers passed
Anecdotal Results

- Students’ attitudes toward mathematics improved overall
- Grades for completers were higher than the CCBC average
- Students had more meaningful interactions with their classmates
Samples of Student Postings During the Semester
Feedback from Students

- Enjoyed interacting with classmates without it being only problem solving
- Hearing others helped them become more positive
- Too many prompts – asked that the number of times needing to respond be reduced in future
Going Forward

- Improve design
  - Have students post comments, but not as often
  - Have students journal affirmations

- Contact students more frequently
  - Provide personalized messages to students that highlight a positive accomplishment weekly

- Track students from Spring 2015 semester online classes in their subsequent mathematics class(es)
Questions or Comments?
Thank you!

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References

- Clutts, David W. *Mathematics Self-Efficacy of Community College Students in Developmental Mathematics Courses* (Dissertation: Liberty University, October 2010)
References

Note to Viewers of This PowerPoint

- This copy does not include the notes asked for by attendees to this session – the files were too large and need to be separate from this PowerPoint.

- I will be uploading this presentation, the surveys used, and prompts used in my online classes to the AMATYC website.