

Mindset for Success:
A Case Study of
Growth Mindset in the
Introductory History Classroom

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Mindset, defined by Dr. Carol Dweck

	Fixed Mindset	Growth Mindset
Basic qualities (talent/intelligence) are...	Unchanging. You were born that way, per Lady Gaga.	Can be developed with hard work and commitment.
Success is...	Essentially predetermined by our inner traits.	A result of many factors, including hard work and good strategies.
When confronted with difficulty...	Fixed mindset people quit, taking difficulty as a sign that they're not born to succeed in this area.	Growth Mindset people demonstrate resilience and persist. They see difficulty as a temporary obstacle that can be overcome with work and commitment.
Society's role in this is...	That we frequently send cues to certain groups that they have fixed qualities, and as a result, discourage success.	That we should cultivate a growth mindset in student as a powerful tool to help all students persist and succeed.

For more, see www.mindset.com

Dr. Angela Bauer, High Point University

- Small private liberal arts school, North Carolina.
- Difficulties with student persistence in gatekeeper courses.
- Quality Enhancement Plan committed to teaching growth mindset, 2016-21.
- As of 2014, Biology was the first department to make the intervention, with weekly mailings and discussion in-class.
- Significant reduction of gap in success and persistence between Caucasian students and minorities, male and female students.

Just a little change (small, to say the least):

- The problem and the goal:

Time: introductory classes are already jammed with content.

Growth minded messaging (GMM) is typically non-disciplinary.

Few instructors are experts in GMM.

Overcome these hurdles, and more instructors could use GMM.

- The question:

Can we see the results of growth minded messaging (GMM)
with a minimal intervention?

Can we create positive results on a smaller scale?

The Set-Up

- Spring 2017: Two introductory World History II classes.
- One would receive GMM, one would not.
- Class chosen for GMM selected due to predicted academic weakness (thanks to time slot.)
- 13 interventions throughout term, no more than 5 minutes maximum.
- Interventions consisted of short videos explaining neuroplasticity, GMM, and stories demonstrating the results of persistence (JK Rowling, the Dyson vacuum, etc.)

An Example:

- In a recent summer camp hosted at Stanford, 6th and 7th grade students were exposed to scientific information about brain development and mindset (growth messaging).
- After 18 days of math teaching the students improved their scores on standardized tests by an average of 50%.

Measures:

- Survey of student attitudes to learning before/at end of course (both classes)

Start of Course	End of course
What was your attitude to your academic work (in high school/previous ed)? (This is particularly about writing and reading-based courses.)	What was your attitude to your academic work (this term)? (This is particularly about writing and reading-based courses.)
Do you think your attitude toward your academic work has changed since high school/previous ed?	Do you think your attitude toward your academic work has changed since the start of this term?
Let's say you get a low score on an assignment. You're worried about the impact of this on your overall class grade. Be honest—what do you do?	If you received a score that concerned you on anything this term (a quiz, exam, paper), what did you do?
How would you describe your expectation of success in college (passing grades, ultimately earning a degree)?	How would you describe your expectation of success in college (passing grades, ultimately earning a degree) as of TODAY?

More measures:

- Additional questions for GMM section.

This section included facts about the science of learning—what happens when we learn, and what that means for our academic success. What did you think about the inclusion of this information in your section?

1. *It made me more likely to stay in the course and work hard.*
2. *It had no impact on my staying in the course and my degree of work.*

Did knowing more about how we learn help you to work hard in your other courses?

- Grade distribution—which section did better?
- Retention—which section retained more students?
- Diversity—did a given section retain more students of diverse backgrounds? (Working adult, minority, gender, etc.)

Demographics:

	Non-GMM	GMM
Total number of students:	24	28
% minority, % female:	53.5% minority, 54.5% female	50% minority, 52.3% female
Work hours:	54.5% unemployed, 27.5% 0-15 hrs	50% unemployed, 21% 25-30 hrs
Level in degree:	54.5% freshmen	78.6% freshmen, 14.3% junior
Grades in previous education:	90.9% “mostly As, Bs,” rest Cs	42.9% As/Bs, 7.1% “below C”
Attitude to work:	54.5 expect to be “okay” with work and strategy. 36.5% predict an easy A.	50% expect an easy A, 50% expect to be “okay.”
Credits taken in the same semester:	45.5% up to 12 hrs, 18.2% over 18 hrs	35.7% up to 12 hrs, 7.1% over 18 hrs

The Results:

- Retention: No conclusion yet.

	Non-GMM	GMM
% of students earning a UW or W in final grades <i>(17.4% U/UW average in last 6 sections of course)</i>	8.3%	20.83% (*adjusted for a medical withdrawal, 17.39%)
% of minority retention <i>(89% of minority students completed the last 6 sections of the course.)</i>	82% of minority students completed the course.	75% of minority students completed the course (*adjusted for a medical withdrawal, 83%)
% of female retention <i>(62.7% of women completed the last 6 sections of the course.)</i>	88% of female students completed the course.	80% of female students completed the course.

The Results:

- Grades

Higher rate of As/Bs overall

	Non-GMM	GMM
A	22.7%	33.33%
B	13.64%	8.33%
C	27.27%	16.67%
D or F	27.27%	20.83%

Annotations: A red arrow points down from the text 'Higher rate of As/Bs overall' to the GMM column. A red arrow points up from the text 'Grades trending lower overall' to the Non-GMM column. Brackets group the A and B rows for a total of 36.34% for Non-GMM and 41.66% for GMM. Brackets group the C and D or F rows for a total of 54.54% for Non-GMM and 37.5% for GMM.

Grades trending lower overall

The Results:

- Attitudes/approaches to work

	Non-GMM	GMM
What was your attitude to work this term? (Esp. in reading/writing classes)	82.4% expected to be able to do work assigned; 11.8% expected to struggle	70.6% expected to do the work assigned, 17.6% expected to struggle
Has your attitude to work changed this term?	58.8% yes	88.2% yes
If you had a score that concerned you, what did you do?	35.3% look at feedback/assignment, <u>23.5% talk to professor</u> , <u>35.3% do nothing</u> , 5.9% go to the relevant labs (64.7% do something productive)	<u>47.1% look at feedback/assignment</u> , 5.9% talk to professor, <u>29.4% do nothing</u> , 5.9% go to the relevant labs, <u>5.9% talk to professor AND review written feedback</u> , 5.9% did well on everything so question not applicable

The Results

- Impact of GMM:

This section included facts about the science of learning—what happens when we learn, and what that means for our academic success. What did you think about the inclusion of this information in your section?

→88.2% It made me more likely to stay in the course and work hard.←

The Results:

- Impact of GMM

Did knowing more about how we learn help you to work hard in your other courses?

→94.1% said Yes←

The Results:

- Impact of GMM

Do you have any further input on the use of growth-minded messaging (the scientific information about learning) in this course or in any of your other courses?

- **I already had intended on working hard, but the motivation helped.**
- **It was encouraging.**
- **It's all worth it in the end.**
- **Check with cognitive psych teachers for information about encoding specificity and levels of processing theory as ways to help memorize course content effectively.**
- **(No negative feedback!)**

Conclusions:

- Students in the GMM class clearly felt something had changed in their approach to their work—88.2% indicated their attitude to work had changed during the term (compared to 58.8% of the non-GMM class) and their answers to GMM survey questions indicated they saw value in the assignment.
- Students in the GMM class (tentatively) showed a more proactive response to problematic grades (29.4% reported “doing nothing” vs. 35% of the non-GMM class, and in the GMM class students reported talking to the professor *and* reviewing feedback as an option.)
- Students in the GMM class had a higher rate of As and Bs as a final grade and a lower D/F rate.
- This is DESPITE: having more work hours, less collegiate experience higher expectations of struggling during academic work, more static beliefs about their academic development (90% of non-GMM indicating their attitude to academic work had changed since high school, vs. 64% of GMM students), and remarkably lower grade experiences in high school than the non-GMM class. (90.9% of non-GMM students rated their previous work as As or Bs, compared to 42.9% of the GMM class.)

Next steps:

- Fall 2017 online replication of the experiment.
- Online will include growth-minded messaging built into points-bearing exercises.

...and beyond:

- One Catholic liberal arts school.
- One open-access community college.
- One state college.

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