



Mindsets and the Learning Environment: Pairing Light-touch Learning Mindset Interventions with a Long-term Campus Initiative

BY CHLOE STROMAN

RESEARCH SNAPSHOT | MAY 2019

Postsecondary education is an important pathway to pursue vocations and passions. But currently, about half of all full-time, first-time students complete bachelor’s degrees within six years, and an even smaller proportion complete associate degrees within three years.¹ With students and policymakers raising important questions regarding equity, quality, and relevance in postsecondary education, it is critical to develop and study strategies for building more effective postsecondary learning environments.

This project analyzed the impact of online learning mindset interventions administered to prospective Michigan State University (MSU) students in the summer before matriculation. The study evaluated the impact of the interventions on students’ academic performance and persistence and explored the impact of pairing the online mindset interventions with an on-campus mentoring program. The project also explored how the effects of the interventions differed for different groups of students.

STUDY DESIGN

The research team investigated two light-touch online mindset interventions focused on fostering (1) students’ belief that intellectual ability can be developed, or growth mindset, and (2) a sense of belonging. They measured the impact of the interventions on students’ academic performance and persistence, as measured by GPA, number of credits attempted and earned, selection of challenging courses and majors, and rates of course completion and re-taking.

This study is part of the Spartan Persistence Project, a multi-year (longitudinal) study that uses a rigorous randomized control trial design. Beginning in 2013, each cohort of prospective MSU students received an email with a link to an online survey about growth mindset in the summer before their first year of college. The email also randomly assigned prospective students to one of three conditions: 1) growth mindset intervention; 2) belonging intervention; and 3) no intervention (control). The students assigned to the growth mindset intervention read an article and

KEY FINDINGS

- An online growth mindset intervention led to more challenging course-taking and higher enrollment rates in selective majors.
- The growth mindset intervention had positive effects on Latinx students’ GPA that persisted over multiple semesters.
- Preliminary evidence suggests that pairing an online belonging intervention with mentoring support led to higher grade point averages (GPA) for students who were identified to receive supplemental guidance on campus.

RESEARCH TEAM

- [Barbara Schneider](#) (PI), Michigan State University
- [John Yun](#) (Co-PI), Michigan State University
- [Soobin Kim](#) (Co-PI), Michigan State University

Areas of Expertise: Sociology, Educational Evaluation and Policy, Economics

SAMPLE

This study used the Common Application–National Student The study included four cohorts of prospective Michigan State University (MSU) students, each consisting of more than 6,000 students, who were admitted to enroll at the university in fall 2014 through fall 2017. Data on academic outcomes including GPA, the number of credits attempted and earned, course selection, and major were collected from the Office of the Registrar for participants during each semester from fall 2014 to spring 2018. Student demographic and background data included: gender; race and ethnicity; first-generation college student status; high school name and GPA; ACT or SAT scores; and Pell grant eligibility.

MINDSET SCHOLARS NETWORK

The Mindset Scholars Network is a group of leading social scientists dedicated to improving student outcomes and expanding educational opportunity by advancing our scientific understanding of students’ mindsets about learning and school.

completed an exercise that emphasized that intelligence can be developed with effort, effective learning strategies, and asking for help. Students assigned to the belonging condition read a series of stories written by older students, describing what belonging at MSU means as well as their experience of developing a sense of belonging at MSU. Stories were matched with each reader's identified gender and race/ethnicity. Students completed these interventions independently online during the summer before matriculation and the interventions took between 20 and 30 minutes to complete.

In the 2017-2018 academic year, the researchers added a new component to their study. They examined the impact of complementing the light-touch interventions with a mentorship program offered by the university. Incoming students who were identified by the university to receive extra support based on variables related to their high school experience were assigned a "Spartan Mentor." Mentors were trained to foster a sense of belonging by communicating that MSU values each student as a member of the community and wants them to succeed. Specifically, mentors met students at orientation, followed up at critical times during the year (e.g., first exam, preparing for term break, financial aid deadlines etc.) and connected them to financial, social, mental health, and academic resources as needed.

KEY FINDINGS

The growth mindset intervention led to more challenging course-taking and higher enrollment rates in selective majors.

To understand how the growth mindset intervention might impact students' long-term academic outcomes, the team assessed three student behaviors that are consistent with holding a growth mindset: taking challenging classes, choosing a challenging major, and re-taking courses. Students who completed the growth mindset intervention were more likely to take challenging courses (defined as the top tenth percentile of courses with the most students receiving a grade of 2.0 or lower) during their first year of school. They were also more likely to opt into a challenging major (defined as majors with limited enrollment, with selection based on GPA and prerequisite course completion and grades) during their second year of school. Both of these effects were most pronounced for students eligible for Pell grants based on their family's income. In addition, Pell-eligible students were more likely to re-take failed courses post-intervention.

The positive effects of the growth mindset intervention on Latinx students' GPA persisted over multiple semesters.

While the growth mindset intervention did not raise MSU students' GPA on average, it did increase Latinx students' GPAs. The researchers examined the degree to which these intervention effects on GPA persisted over time by tracking the fall 2014 student cohort over the course of

their first four years at MSU. The researchers found that compared with Latinx students in the control group, Latinx students assigned to the growth mindset intervention had higher first-year fall and spring GPAs, leading to higher cumulative GPAs for these students across the eight semesters post-intervention.

There is preliminary evidence that pairing the belonging intervention with mentoring support led to higher GPA for students who were identified to receive supplemental guidance on campus.

The research team hypothesized that because "Spartan Mentors" were trained to foster a sense of belonging on campus, the light-touch belonging intervention could help to prepare students to take advantage of the mentorship support. They found preliminary evidence supporting this hypothesis; first-year students who were assigned a mentor showed positive growth in GPA during their first semester when they were randomly assigned to receive the belonging intervention. There were no overall positive effects on GPA for the mentorship program alone, the belonging intervention alone, nor the growth mindset intervention paired with the mentorship program.

INSIGHTS & FUTURE DIRECTIONS

Along with informing the evolution of MSU's orientation for new students, this research can help to refine other interventions for postsecondary students, especially based on their interaction with sustained on-campus initiatives for student success. The work is also building important knowledge about how the impact of these interventions varies across students and outcomes.

Consistent with prior research,² the growth mindset intervention led to more challenge-seeking behavior, particularly for Pell-eligible students. However, it did not raise students' GPA on average. It follows that GPA alone may be a poor indicator of the effectiveness of mindset interventions; students who take tougher courses within more challenging majors may earn lower GPAs than they would have in less challenging courses. Research has shown, however, that rigorous course-taking has academic benefits,³ and these challenging courses are often gateways into selective majors that have been linked with long-term economic benefits.⁴

Importantly, when the researchers examined the effects of the growth mindset intervention for the full population of students (as opposed to focusing on Pell-eligible or Latinx students, as reported here) they found different effects for different class years. These results suggest that even using the same intervention at the same institution does not guarantee that effects will be the same for different cohorts of students. Additionally, they found that a relatively large sample size (over 6,000 students completed the interventions each year) does not ensure that cohorts will be balanced in terms of students' demographic characteristics. These two lessons from MSU highlight the fact

that heterogeneity in the effects of social psychological interventions should be expected. The study suggests that the effectiveness of interventions may be based on their interaction with students' context and identity.

The research team will continue to investigate the mentorship program's impact on GPA using data from the 2018-19 academic year. They plan to look for differences in outcomes based on students' backgrounds and based on the individual mentors delivering support. They will also examine the degree to which the growth mindset intervention can increase students' likelihood of graduating within four years and graduating with a selective major.

References

1. Bridget Terry Long, "[The College Completion Landscape](#)," 2018.
2. [Bettinger et al, 2017](#).
3. See, for example, [Long et al, 2012](#).
4. Carnevale, Cheah, & Hanson, "[The Economic Value of College Majors](#)," 2015.

ABOUT THE MINDSETS & THE LEARNING ENVIRONMENT INITIATIVE

The Mindset Scholars Network launched a new interdisciplinary initiative in Fall 2016 to explore how learning environments shape the mindsets students develop about learning and school. The project's aim is to generate scientific evidence about how educators, school systems, and structures can convey messages to students that they belong and are valued at school, that their intellectual abilities can be developed, and that what they are doing in school matters.

Fourteen projects were awarded over two rounds of this initiative. Funding for the initiative was generously provided by the Bill & Melinda Gates Foundation, Joyce Foundation, Overdeck Family Foundation, and Raikes Foundation.