Implementing Change on Campus: Building a Learning Analytics Culture & Practice

Mark Largent
Associate Dean of Undergraduate Studies & Director of Learning Analytics
Michigan State University
Our Universities

Our member universities and board members

The University Innovation Alliance is:

- Oregon State University
- UC Riverside
- Arizona State University
- University of Texas at Austin
- University of Kansas
- Iowa State University
- Purdue University
- Michigan State University
- Ohio State University
- Georgia State University
- University of Central Florida
Michigan State University’s commitment to the University Innovation Alliance:

• Increase its overall 6-year graduation rate to 82%
• Reduce the opportunity gap in its 6-year graduation rate
MSU’s 6-Year Graduation Rate

- 69% in 2004
- 74% in 2010
- 77% in 2010
- 79% in 2016
- 78% in 2016
Graduation Rates

2010 Entering Cohort - 6-Year Graduation Rates

- Male
- Female
- All
- Goal: 82%

<table>
<thead>
<tr>
<th>Group</th>
<th>Male</th>
<th>Female</th>
<th>All</th>
<th>Total</th>
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<tbody>
<tr>
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<td>Two or More</td>
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<td>88</td>
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<tr>
<td>International</td>
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<td>80</td>
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<td>Total</td>
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<td>81</td>
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</table>
Graduation Rates

2010 Entering Cohort - 6-Year Graduation Rates

- White: 6
- African-Amer: 59
- Hispanic: 19 points
- Asian: 78
- Two or More: 6
- International: 78
- Total: 78

19 points
Forecasting 6-Year Graduation Rate Using 2000-2016 Trends

- **Fall 2014**: 100%
- **Now**: 86%
- **Spring 2020**: 78.7%

The trends show a decline in graduation rates from 2000 to 2016.
“At MSU, we believe that every undergraduate student who is admitted has the ability to learn, thrive, and earn a Bachelor’s degree from Michigan State. We believe that student success is the responsibility of everyone at MSU.”

Sekhar Chivukula
Associate Provost for Undergraduate Education
Pathways Through MSU

Cumulative GPA

Term: 1 2 3 4 5 6 7 8 9 10 11 12

2000-2010 Entering Cohorts
Robert Moses
1888-1981
“Mr. Moses had an instinctive feeling that someday politicians would try to put buses on the parkways. . . . He used to say to us fellows ‘Let’s design the bridges so the clearance is all right for passenger cars but not for anything else.’”

-Sid Shapiro
“Mr. Moses did this because he knew that something might happen after he was dead and gone. He wrote [the original] legislation [that kept buses off the parkways], but he knew you could change the legislation.”

-Sid Shapiro
“You can’t change a bridge after it’s up.”

-Sid Shapiro
“…that old son of a gun had made sure that buses would never be able to use his goddamned parkways.”

-Lee Koppelman
Our goal is to use MSU’s data to:

1. Uncover artificial barriers to student success
2. Challenge the myths on which our curricula, our policies, and our practices are based
3. Identify successful interventions
4. Realize which students face particular challenges and for whom particular interventions work
Some of the challenges MSU faces in this effort:

1. Resource-constrained environment
2. Continually rising research and grant-winning expectations
3. Siloed data and college-centric governance
4. High standards for student data privacy
5. Low levels of collaboration with data between data-holders, analysts, administrators, advisors, and faculty
How?

1. Build a culture of evidence-based decision-making
2. Build trust and self-reliance
3. Use vendors and consultants sparingly, build capacity
4. Embrace project-based education and culture-building endeavors
5. Share with external partners
How?

1. Using data to expose student success (or lack thereof)
Incoming MSU Students are Each Assigned a Set of University Mathematics Requirements
Incoming MSU Students are Each Assigned a Set of University Mathematics Requirements

High Math Performing Students:

Medium Math Performing Students:

Low Math Performing Students:
Incoming MSU Students are Each Assigned a Set of University Mathematics Requirements

High Math Performing Students: No Classes

Medium Math Performing Students:

Low Math Performing Students:
Incoming MSU Students are Each Assigned a Set of University Mathematics Requirements

High Math Performing Students: No Classes

Medium Math Performing Students: 1-2 Courses

Low Math Performing Students:
Incoming MSU Students are Each Assigned a Set of University Mathematics Requirements

High Math Performing Students: No Classes

Medium Math Performing Students: 1-2 Courses

Low Math Performing Students: Remedial Algebra Course + 1-2 Courses
Of the MSU Students Who:

1) Are required to take the remedial mathematics course, and
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1) Are required to take the remedial mathematics course, and

2) Attempt to pursue a STEM major
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6% successfully complete a STEM major at MSU
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$5 million grant to help STEM students attain goals

Michigan State University is launching a new program designed to help students who didn’t receive the pre-college math and science training they needed to pursue degrees and, ultimately, careers in science-related fields.
Average MTH 103 grade by Math Placement Score by group, Term: All

Distribution MTH 103 grades by group

- DOW: MTH Placement Score <10 placed to MTH103 directly
- MTH Placement Score <10 taken MTH1825 prior
- MTH Placement Score <10 taken MTH1825 without DOW
- MTH Placement Score >=10 without DOW placed into MTH103 directly

Legend:
- Green: DOW: MTH Placement Score <10 placed to MTH103 directly
- Purple: MTH Placement Score <10 taken MTH1825 without DOW
- Orange: DOW: MTH Placement Score <10 taken MTH1825 prior
- Blue: MTH Placement Score >=10 without DOW placed into MTH103 directly
How?

1. Using data to expose student success (or lack thereof)

2. Coarsened exact matching
What outcome would you like to analyze?

- Select One

Use Matching?
- Yes
- No

Across which factor would you like to compare?
- Race

Submit

Comparison History and Results

Download
Social Science Help Room

What outcome would you like to analyze?
ISS210

Use Matching?
Yes
No

On which characteristics would you like to match?
- Race
- Gender
- ACT
- HSGPA
- FirstGen
- InState
- Pell
- Major
- College
- International

Across which factor would you like to compare?
Race

Comparison History and Results

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<thead>
<tr>
<th>Comparison Category</th>
<th>From</th>
<th>To</th>
<th>Group</th>
<th>Subgroup</th>
<th>Matched?</th>
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<th>GPA</th>
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How?

1. Using data to expose student success (or lack thereof)
2. Coarsened exact matching
3. Slicing and sub-grouping
Assessed Credit (1st day) Distribution in subsequent terms by Total, 2011 Cohort
Discussion Questions:

Where are the low bridges, mechanical tomato harvesters, and vertical curbs on your campus?

What myths could be tested?

How do you avoid arguments over “rigor” that serve to perpetuate the status quo?

How do you build the campus culture necessary to pursue evidence-based reforms?

What should you buy, build, or borrow?
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