Panel 3: Issues Facing Non-R1 Institutions

Uri Treisman
The Charles A. Dana Center
at The University of Texas at Austin

TPSEmath
Baltimore
November 13, 2014
Performance Based Funding for Higher Education

Source: National Conference of State Legislatures
### Higher Education Mathematics Course Enrollment

<table>
<thead>
<tr>
<th></th>
<th>4 Year Institutions</th>
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<th>2 Year Institutions</th>
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<tbody>
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<td>College Algebra and</td>
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<td>58%</td>
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<td>54%</td>
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<td>Calculus</td>
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<td></td>
<td>37%</td>
<td>35%</td>
<td>37%</td>
<td>38%</td>
<td>10%</td>
<td>8%</td>
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<td>Advanced Courses</td>
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<td>Other Courses</td>
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<td>12%</td>
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<td>12%</td>
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<td>TOTAL Enrollment</td>
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<td>(in thousands)</td>
<td>1469</td>
<td>1614</td>
<td>1607</td>
<td>1971</td>
<td>1348</td>
<td>1273</td>
<td>1580</td>
<td>1887</td>
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Source: Adapted from the CBMS 2010 Census Report, Table S.2
High Rates of Failure in Gateway Courses

Students Passing a Math Course that Counts Toward an Associate’s Degree

Fall 2010 enrollments in math courses that students could apply toward a degree → students who remained enrolled until the end of the term → students who received a passing grade

About 17,600 African American students
- 70% of 12,300 students
- 41% of 7,300 students

About 108,700 Hispanic/Latino students
- 75% of 81,900 students
- 49% of 53,500 students

About 98,600 White students
- 80% of 78,500 students
- 60% of 58,900 students

source: Passing when it counts. EdSource Issue Brief, February 2012
www.edsource.org/pub12-passing-when-it-counts.html
Estimated Baccalaureate Degree Attainment
by Age 24 by Family Income Quartile
1970 to 2009

Source: Postsecondary Education Opportunity
State Progress in CCR Policy Adoption

- Accountability: 0 (2005), 0 (2007), 0 (2010), 0 (2013)

Source: Closing the Expectations Gap Report – Achieve.org
The SAT College and Career Readiness Benchmark

- 43% Met the SAT Benchmark
- 57% Did Not Meet the SAT Benchmark

In 2013, 64% of all ACT-tested high school graduates met the English ACT College Readiness Benchmark, while 26% met the ACT College Readiness Benchmarks in all four subjects. Forty-four percent of graduates met the Reading Benchmark, and 44% met the Mathematics Benchmark. Just over 1 in 3 (36%) met the ACT College Readiness Benchmark in Science.

Source: *PISA 2012 Results in Focus: What 15-Year Olds-Know and What They Can Do With What They Know*, OECD 2013
PISA and Poverty

Source: Michael Marder, 2013; from PSID, CNEF, UNICEF, and PISA datasets
Average Scale Scores by State – Low-Income Students
8th Grade – NAEP Math (2013)

Source: NAEP Data Explorer, NCES. Graphic: Charles A. Dana Center.
WORKING IN TEXAS: THE NEW MATHWAYS PROJECT & TRANSFER CHAMPIONS INITIATIVE
STATISTICS PATHWAY is designed for students seeking a college-level statistics course as part of their general education requirement for majors in fields including:
- Nursing
- Social Work
- Criminal Justice

QUANTITATIVE LITERACY PATHWAY is designed for students pursuing a field of study in which general education math is a requirement. These fields include majors in:
- Communications
- Graphic Design
- Paralegal

STEM-PREP PATHWAY is designed for students seeking a STEM or mathematics-intensive major in fields including:
- Petroleum Engineering
- Computer Science
- Chemistry
Principles of the NMP Model

Developmental mathematics students should have access to:

1. Multiple pathways aligned to specific fields of study
2. Acceleration that allows students to complete a college-level math course in one year
3. Intentional use of strategies to help students develop skills as learners directly linked to their courses
4. Curriculum design and pedagogy based on proven practice coupled with a context sensitive improvement strategy
Institutions Participating in Phase 1 of the Transfer Champions as of Fall 2013

<table>
<thead>
<tr>
<th>Two-Year</th>
<th>Four-Year</th>
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<tbody>
<tr>
<td>Austin Community College</td>
<td>The University of Texas at Austin</td>
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<td></td>
<td>Texas State University</td>
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<tr>
<td>Brazosport College</td>
<td>University of Houston</td>
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<td></td>
<td>University of Houston-Clear Lake</td>
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<tr>
<td>El Paso Community College</td>
<td>The University of Texas at El Paso</td>
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<tr>
<td>Kilgore College</td>
<td>The University of Texas at Tyler</td>
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<td></td>
<td>Stephen F. Austin State University</td>
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<td>Texas A&amp;M University-Commerce</td>
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<tr>
<td>Lone Star College–Kingwood</td>
<td>Sam Houston State University</td>
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<td></td>
<td>University of Houston–Downtown</td>
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<tr>
<td>Midland College</td>
<td>Texas Tech University</td>
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<td>The University of Texas of the Permian Basin</td>
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<tr>
<td>Northwest Vista College</td>
<td>The University of Texas at San Antonio</td>
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<td></td>
<td>Texas A&amp;M University-San Antonio</td>
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<tr>
<td>South Texas College</td>
<td>The University of Texas-Pan American</td>
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<tr>
<td>Temple College</td>
<td>Texas A&amp;M University-Central Texas</td>
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<td>University of North Texas</td>
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</table>
Transfer Champion Commitments

We seek collaborations with four-year “transfer champions” that

- Support the work of the 50 Texas community college districts to implement multiple mathematics pathways that align general education mathematics courses to programs of study
- Confirm that NMP college-level courses are transferable for college credit and can be predictably applied to identified majors
- Improve communication about mathematics requirements for major programs of study at four-year institutions
- Work regionally with two-year colleges to modernize mathematics course requirements so they align with the recommendations of professional associations, particularly in the fields of nursing, communications, social work, and criminal justice.

Note: Transfer Champions are not required to implement the NMP curricular materials. The focus of the Transfer Champions initiative is the alignment of entry-level mathematics courses.
WORKING AT SCALE: STATE MATH TASK FORCES
The University System of Georgia Mathematics Task Force

“…charged with determining how the System’s colleges could dramatically improve success rates in gateway mathematics courses without compromising the disciplinary integrity of these courses.”

—From University System of Georgia: Transforming College Mathematics
Recommendations from the University System of Georgia Mathematics Task Force

1. Focus on supporting success in college credit-bearing, gateway mathematics courses for all students.

2. Aligning gateway mathematics course sequences with academic programs of study. In particular, College Algebra should not be the default class for non-STEM majors.

3. Implement a co-requisite approach to support student success in gateway mathematics courses.

4. Develop year-long mathematics pathways for students with significant gaps in preparation.

5. Use multiple measures to place students in gateway courses and appropriate supports.

6. Terminate use of COMPASS as an exit examination.

7. Align the outcomes of gateway mathematics courses with the Common Core Georgia Performance Standards (CCGPS) for Mathematics.

8. Develop advising systems and protocols for placing students in gateway mathematics courses and co-requisite supports that align with their intended programs of study.
OHIO BOARD OF REGENTS’
CHARGE TO THE MATHEMATICS
STEERING COMMITTEE

To develop expectations and
processes that result in each
campus offering pathways in
mathematics that yield
(1) increased success for students
in the study of mathematics;
(2) a higher percentage of students
completing degree programs; and
(3) effective transferability of credits
for students moving from one
institution to another.
Recommendations from the Ohio State Math Task Force

1. Improve student success in entry-level courses by aligning mathematics to academic programs of study and by improving instructional delivery mechanisms
2. Develop, implement, and evaluate co-requisite strategies to support underprepared students
3. Redesign OTM course criteria and processes to focus on student learning outcomes
4. Establish a statewide network of mathematics chairpersons
5. Improve communication among mathematics faculty and stakeholders across institutions
6. Develop quality measures for improving student success in mathematics; then collect, analyze, and share relevant data
7. Strengthen collaboration and communication between K12 and higher education on mathematics curriculum and instruction
Demand for participating in the NMP State Math Task Force project is high. States seeking to join the network include: Arkansas, Connecticut, Maryland, Michigan, New Jersey, Oklahoma, Oregon, and Washington.

The Dana Center is currently working with eight states:
- Colorado
- Georgia
- Indiana
- Missouri
- Montana
- Nevada
- Ohio
- Texas
Contact Information

- To receive monthly updates about the NMP, contact us at:
  mathways@austin.utexas.edu

- General information about the Dana Center:  www.utdanacenter.org

- Higher Education work:
  www.utdanacenter.org/higher-education/

  Uri Treisman:  uri@austin.utexas.edu