Follow along on your device:

OVERVIEW

- Purpose of placement policy
- Traditional placement policies
-Validity of traditional placement policies
- Reform efforts in community colleges
- Emerging placement policies
- Recommendations for modernizing placement policy
PURPOSE OF PLACEMENT
PURPOSE OF PLACEMENT

Students accurately assessed as college-ready place into and pass an appropriate college-level course.

Students accurately assessed as not college-ready receive appropriate supports to succeed in college-level courses.

TRADITIONAL PLACEMENT POLICIES
What has been used for math placement?

In the early 2000s, between 92% and 100% of public two-year colleges relied on standardized tests as the sole placement criteria.

In the 2010s, public two-year colleges introduced additional placement options.

How many students are affected by placement tests?

87% of incoming two-year college students are required to take a placement test.

34% More than 1 month's notice.

64% Less than 1 month's notice.

70% of incoming two-year college students are placed into non-credit bearing developmental MATH prior to college-level math.


Source: CCCSE (2016).
Who is referred to developmental courses?

Low-income and underrepresented minority students at two-year colleges are more likely to be referred to developmental courses.

Percent of students taking any developmental course by income level:
- Lowest 25%: 76%
- Lower-middle 25%: 71%
- Upper-middle 25%: 66%
- Highest 25%: 59%

Percent of students taking any developmental course by race/ethnicity:
- Black: 78%
- Hispanic: 75%
- Asian: 68%
- White: 64%

Source: Chen (2016).

How many developmental courses do two-year college students take?

Average number of developmental courses taken by race/ethnicity:
- Black: 3.5
- Hispanic: 4
- Asian: 3
- White: 2.4

Underrepresented minority students are referred to more developmental courses.

Source: Chen (2016).
How are placement test scores validated?

**Method 1:** Studying students who score right above and right below a cut-off score using regression discontinuity.

<table>
<thead>
<tr>
<th>Study</th>
<th>Level</th>
<th>Short-Term Impacts</th>
<th>Medium- &amp; Long-Term Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Persistence</td>
<td>Passed College-Level Math</td>
</tr>
<tr>
<td>TENNESSEE</td>
<td>UPPER</td>
<td>NEG</td>
<td>NULL (conditional)</td>
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<td>UPPER</td>
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<td>TENNESSEE</td>
<td>LOWER vs. MIDDLE</td>
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</tbody>
</table>

Source: Jaggars and Stacey (2014).
How are placement test scores validated?

**Method 2:** Using student-level variables to run linear probability models.

**Severe underplacement:**
Placing a student into remediation who is predicted to get a B or better in college-level course.

**Severe overplacement:**
Placing a student in a college-level course who is predicted to fail it.

Remediation: The effect of attrition.

Students assigned 3 or more semesters of math remediation.

Completed 1st semester of remediation.

Completed 2nd semester of remediation.

Completed 3rd semester of remediation.

Passed gateway course.

LOST

LOST

LOST

LOST

Enrolled and completed  Did not complete  Did not enroll or stopped enrolling

KNOW THIS  The remediation system is broken. More students quit than fail.

COMMUNITY COLLEGE REFORMS
Guided Pathways: Planning, Implementation, Evaluation

Creating guided pathways requires managing and sustaining large-scale transformational change. The work begins with thorough planning, continues through consistent implementation, and depends on ongoing evaluation. The goals are to improve rates of college completion, transfer, and attainment of jobs with value in the labor market — and to achieve equity in those outcomes.

PLANNING

ESSENTIAL CONDITIONS
Make sure the following conditions are in place—prepared, mobilized, and adequately resourced—to support the college’s large-scale transformational change:
- Strong change leadership throughout the institution
- Faculty and staff engagement
- Commitment to using data
- Capacity to use data

PREPARATION/AWARENESS
Understand where you are, prepare for change, and build awareness by:
- Engaging stakeholders and making the case for change
- Establishing a baseline for key performance indicators
- Building partnerships with K-12, universities, and employers

SUSTAINABILITY
Commit to pathways for the long term and make sure they are implemented for all students by:
- Determining barriers to sustainability (state, system, and institutional levels)
- Redefining the roles of faculty, staff, and administrators as needed
- Identifying needs for professional development and technical assistance
- Revamping technology to support the redesigned student experience
- Reallocating resources as needed
- Continuing to engage key stakeholders, especially students
- Integrating pathways into hiring and evaluation practices

IMPLEMENTATION

CLARIFY THE PATHS
Map all programs to transfer and career and include these features:
- Detailed information on target career and transfer outcomes
- Course sequences, critical courses, embedded credentials, and progress milestones
- Math and other core coursework aligned to each program of study

HELP STUDENTS GET ON A PATH
Require these supports to make sure students get the best start:
- Use of multiple measures to assess students’ needs
- First-year experiences to help students explore the field and choose a major
- Full program plans based on required career/transfer exploration
- Contextualized, integrated academic support to help students pass program gateway courses
- K-12 partnerships focused on career and college program exploration

EARLY OUTCOMES
Measure key performance indicators, including:
- Number of college credits earned in first term
- Number of college credits earned in first year
- Completion of gateway math and English courses in the student’s first year
- Number of college credits earned in the program of study in first year
- Persistence from term 1 to term 2
- Rates of college-level course completion in students’ first academic year
- Equity in outcomes

HELP STUDENTS STAY ON THEIR PATH
Keep students on track with these supports:
- Ongoing, intrusive advising
- Systems for students to easily track their progress
- Systems/procedures to identify students at risk and provide needed supports
- A structure to redirect students who are not progressing in a program to a more viable path

ENSURE STUDENTS ARE LEARNING
Use these practices to assess and enrich student learning:
- Program-specific learning outcomes
- Project-based, collaborative learning
- Applied learning experiences
- Inescapable student engagement
- Faculty-led improvement of teaching practices
- Systems/procedures for the college and students to track mastery of learning outcomes that lead to credentials, transfer, and/or employment

EVALUATION

Contributors to this model for Guided Pathways are: American Association of Community Colleges (AACC), Achieving the Dream (ATD), The Aspen Institute, Center for Community College Student Engagement (CCSE), Community College Research Center (CCRC), Complete College America, The Charles A. Dana Center, Jobs for the Future (JFF), National Center for Inquiry and Improvement (NCII), and Public Agenda.
FOUR PILLARS OF GUIDED PATHWAYS

- MAPPING PATHWAYS TO STUDENT END GOALS
- HELPING STUDENTS CHOOSE AND ENTER A PROGRAM PATHWAY
- KEEPING STUDENTS ON A PATH
- ENSURING STUDENTS ARE LEARNING

Developed from the American Association of Community Colleges and the Community College Research Center.
A NATIONAL MOVEMENT:
Colleges Implementing Guided Pathways

Source: Jenkins, Lahr, Fink, & Ganga (2018) and updated April 2019.
Emerging Texas Math Pathways

**Meta-Major**
- Liberal Arts, Fine Arts, and Humanities
- Social Sciences and Social Services
- Nursing and Health Professions

**Math Pathway**
- Quantitative Reasoning Pathway—Math 1332 Contemporary Math
- Statistical Reasoning Pathway—Math 1342 Elementary Statistical Methods
- Business Pathway—Math 1324 Mathematics for Business
- Teacher Pathway—Math 1350 Fundamentals of Math I (Math 1314 is a prerequisite)
- STEM Pathway—Math 2413 Calculus I (with Math 1314 College Algebra and 2312 Pre-Calculus if needed)

**Non-STEM Math Pathways**

**STEM Math Pathways**

Source: Dana Center Mathematics Pathways (n.d.)
Math Pathways

**Traditional**: Students deemed underprepared are placed into multi-semester non-credit developmental courses prior to college math.

**Co-Requisite**: Students deemed underprepared are placed directly into college math with in-semester supports.
As the gateway math experience evolves, placement policies must concurrently evolve to increase access, equity, and completion of college-level math courses for all students seeking higher education.
EMERGING PLACEMENT POLICIES
Pathways-Aligned Placement

• Redesigning placement criteria to align with the specific needs required by programs with differentiated math (statistics, quantitative reasoning, college algebra, etc.)

Multiple Measures

• The use of multiple indicators and sources of evidence of student learning, of varying kinds, collected at multiple points in time, within and across subject areas.

Co-requisite Support

• Directly enrolling students deemed underprepared in college-level courses with additional supports.
TIME TO LEARN MORE!

Please form groups of at least 6 people.
In each group, assign 3 subgroups.

READ
Each subgroup will read about 1 (of 3) emergent placement policy.

DISCUSS
Each subgroup will talk about the discussion questions for their policy.

SHARE
Each subgroup will return to the large group & share an overview.
Read on your own device:


No device? No problem!

Raise your hand and I will distribute copies.
RECOMMENDATIONS
• In addition to test data, institutions should employ multiple measures, such as HSGPA, to increase the accuracy of placement and increase access to gateway math courses.

• Placement processes should attend to non-cognitive needs to determine necessary non-academic supports for students.
Given the large number of students in various pathways, systems should **reconsider the sole use of algebra-intensive assessments**.

Modern math pathways-aligned assessments could **help institutions determine the appropriate level of student support**: direct enrollment into college math, college math with support, redesigned co-requisite college math, or support before college math.
• **Support faculty** to play a role in developing placement criteria and processes to determine the accuracy of placement during the first weeks of the semester.

• Institutions should consider *gateway bridge options* for students to transition between STEM and non-STEM programs after initial placement.
And…always seek improvement!

• Institutions should **collect and analyze data frequently** to determine any necessary adjustments to new placement policies to ensure equitable access and outcomes.
REFERENCES


Center for Community College Student Engagement. (2016). *Expectations meet reality: The underprepared student and community colleges*. Austin, TX: The University of Texas at Austin, College of Education, Department of Educational Administration, Program in Higher Education Leadership.

Charles A. Dana Center at the University of Texas at Austin. (n.d.). *Emerging Texas math pathways*. Austin, TX: Author.


THANK YOU!

Please reach out:

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GROUP 1: PATHWAYS-ALIGNED PLACEMENT

The pathways approach to community college curriculum aligns gateway math course content with programs of study and aims to replace the “cafeteria style” of course selection.

- Statistics and quantitative reasoning are becoming acceptable options for non-STEM programs in many systems, replacing default college algebra.
- Some colleges are redesigning placement tests and requirements to better align with the prerequisite skills required by math courses that are not algebra-based.

A Case Study: Virginia Community College System. In an effort to decrease the number of students placed into developmental education, Virginia created a new placement test with differentiated placement criteria in Spring 2012.

- The Virginia Placement Test (VPT) replaced the COMPASS test, a nationally recognized algebra-based placement test. The new placement test aligned with the redesigned nine-module developmental math curriculum.
- Under the new differentiated curriculum and test:
  - career-technical/vocational students were placed on proficiency on 3 modules
  - liberal arts students were placed on proficiency on 5 modules
  - STEM students were placed on proficiency on 9 modules

How did placement change as a result of the new curriculum and test?

- A comparison of the Fall 2010 COMPASS-taking cohort (N = 19,799) to the Fall 2012 VPT-taking cohort (N = 20,457) showed enrollment and completion of college-level math increased overall, and for both liberal arts and STEM students:
  - **Placement:** In Fall 2010, 2,158 students (11%) placed into and enrolled in college math. In Fall 2012, 5,980 students (29%) placed into and enrolled in college math (Figure 1).
  - **Completion:** In Fall 2010, 1,491 students (8%) placed into and completed college math. In Fall 2012, 3,683 students (18%) placed into and completed college math (Figure 2).
- Many more students were granted access to college math as a result of the change. Overall, there was a 7% decrease in pass rates among students who placed into college math under the new test. Researchers suggested that colleges consider multiple measures for placement or additional in-semester supports for students placed by the new test.

![Figure 1. Source: Rodríguez, 2014, p. 2.](image1)

![Figure 2. Source: Rodríguez, 2014, p. 3.](image2)
GROUP 1 DISCUSSION:

1. Based on your experience, what might be some pros and cons to using pathways-aligned placement?

2. What role could faculty play to build upon and/or improve the ideas used in Virginia to implement pathways-aligned policies in other institutions/systems/states?

3. Prepare a two-minute summary of pathways-aligned placement from this case study to share with your larger group.
GROUP 2: MULTIPLE MEASURES

Studies have shown high school performance data is a stronger predictor of student performance in college courses than standardized tests alone:
- High school grade point average (HSGPA) is a robust reflection of a student’s performance over time, across subject areas, and in varying instructional settings.
- High school transcripts capture a broader range of student skills, such as persistence, motivation, and willingness to take challenging coursework.

A Case Study: Multiple Measures Assessment Project (MMAP). In collaboration with more than 70 California community colleges, MMAP identified, analyzed, and validated multiple measures data in conjunction with California's Common Assessment test.
- Multiple measures for placement included high school transcript data, non-cognitive variable data, and self-reported high school transcript data.
- MMAP focused on predicting the validity of multiple measures, that is, the likelihood a student is successful in the placement. The colleges used pilot test models, placed students based on the results, and provided feedback.

How did placement change as a result of the use of multiple measures?
- HSGPA predicted a student’s grade in college math more accurately than the associated placement test score.
- The model predicted a combination of high school transcript information and placement test data would increase placement into college math from 15% under the test-only model to 40% with multiple measures.
- The researchers model predicted the success rate in college math with additional students would maintain constant at the test-only rate of 62%.
- Multiple measures increased the number of underrepresented minority (URM) and non-URM students placed in college math and decreased the proportional gap between the groups (Figure 3):
  - The relative change in college placement rates from traditional to multiple measures for URM students was 53%.
  - The relative change in college placement rates from traditional to multiple measures for non-URM students was 30%.
- Researchers noted that giving students additional ways to demonstrate ability appeared to promote equity. More research is planned to also study the impact of non-cognitive variables.

![Figure 3. Potential impact of new multiple measures models on transfer-level placement on URM and non-URM students. Source: Willet et al., 2015, p. 22.](image)
GROUP 2 DISCUSSION:

1. Based on your experience, what might be some pros and cons to using multiple measures for placement?

2. What role could faculty play to build upon and/or improve the ideas used in California to implement multiple measures policies in other institutions/systems/states?

3. Prepare a two-minute summary of multiple measures placement from this case study to share with your larger group.
GROUP 3: CO-REQUISITE SUPPORT

There will always be underprepared students entering community college that will require appropriate supports to succeed in college math.

- Traditionally, community colleges offer a sequence of algebra-based prerequisite courses to deliver the skills necessary for college math success.
- An alternative to the prerequisite model is the co-requisite model, which allows underprepared students to enroll directly in credit-bearing math courses with support.
- Systems such as Tennessee community colleges, the University System of Georgia, and West Virginia community and technical colleges have increased success rates for students deemed underprepared in non-STEM gateway courses from the low teen percentages in two years to the 60-percent range in one semester with the use of pathways-aligned co-requisite support.

A Case Study: Tennessee Board of Regents

- During the 2012 – 2013 academic year, 12.3% of underprepared Tennessee community college students determined by ACT score earned a college math credit in one year.
- Tennessee redesigned math pathways to align with students’ programs of study, removed prerequisite courses, and implemented in-semester supports for college statistics courses.
- As a result of the system redesign, the majority of students deemed underprepared by ACT score placed into co-requisite college statistics.

How did placement change as a result of the use of co-requisite statistics?

- During the 2015 – 2016 academic year, 54.8% of underprepared Tennessee community college students completed gateway statistics in one semester.
- The success rate for low-income students was very similar to the general population with a 52.5% math success rate under the new co-requisite statistics model.
- The math success rate for underrepresented minority (URM) students increased from 6.7% to 47.3% under the co-requisite statistics model (Figure 4).

![Results of Tennessee Community College Co-requisite Math at Full Implementation: URM Students](image)

*Figure 4. Success rates of community college URM students enrolled in co-requisite statistics at full implementation disaggregated by incoming ACT score. Source: Denley, 2017, p. 4.*
GROUP 3 DISCUSSION:

1. Based on your experience, what might be some pros and cons to using co-requisite support for all non-STEM developmental students? For STEM students?

2. What role could faculty play to build upon and/or improve the ideas used in Tennessee to implement co-requisite policies in other institutions/systems/states?

3. Prepare a two-minute summary of the co-requisite placement policy from this case study to share with your larger group.