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Access to Success

Insights for Implementing a Multiple Measures Assessment System

Elizabeth Kopko, Hollie Daniels, Dan Cullinan, Hanna Nichols, Ellen Wasserman, and Sarahi Hernandez

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CENTER FOR THE ANALYSIS OF POSTSECONDARY READINESS

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For more information about CAPR, visit postsecondaryreadiness.org.

We would like to thank the staff at the Arkansas Division of Higher Education, Arkansas Community Colleges, and the Texas Higher Education Coordinating Board, as well as the faculty, staff, and administrators at the Arkansas and Texas study colleges that partnered with us for implementation interviews and the larger Ascendium Multiple Measures Assessment Project. We are also thankful to current and recent members of the research team from MDRC and the Community College Research Center, including Parker Cellura, Cindy Do, Tiffany Morton, Lena Novak, and Julia Raufman. Finally, we would like to thank Tom Brock, Nikki Edgecombe, Alex Mayer, Alyssa Ratledge, and Jillian Verrillo for their helpful feedback during review. Jillian Verrillo edited the report and Carolyn Thomas prepared it for publication.

Overview

The traditional method of assessing college readiness for incoming college students—using standardized tests like Accuplacer, SAT, or ACT—has been criticized because it may lead to misplacements, especially among students who could succeed in college-level courses but are directed into developmental education based solely on their test scores. The consequences of misplacements are particularly concerning because of the increased costs and time associated with participation in developmental education.

A growing body of research advocates multiple measures assessment (MMA) as an alternative to traditional placement systems. MMA uses alternative performance indicators—including high school GPA and other transcript information—to more accurately predict whether students can be successful in college-level courses. Center for the Analysis of Postsecondary Readiness (CAPR) researchers from the Community College Research Center and MDRC sought to assist colleges and states nationwide with the adoption and implementation of MMA practices. As part of these efforts, CAPR initiated the Expanding the Adoption of Multiple Measures Assessment and Building the Research Base study, which involved working intensively with colleges in Arkansas and Texas to improve their ability to adopt and expand MMA placement systems.

The findings in this report are derived from implementation interviews with institutional leaders, administrators, faculty members, and advisors from 12 two- and four-year colleges in Arkansas and Texas. The report highlights the roles of key actors in the adoption of MMA and the important role that state context and policies played in implementation. It also reveals the challenges that colleges had to overcome during implementation, such as obtaining staff buy-in, managing student data, and ensuring sufficient staffing. The study's implementation interviews and cost analysis were driven by three research questions:

1. What is the design of the MMA system at each college?
2. How are colleges adopting MMA practices? What conditions facilitate or hinder the implementation of an MMA system?
3. In each state, what is the average cost, per college, of expanding and implementing MMA systems at the time of the implementation study? What is the average cost by personnel category?

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Executive Summary

Research has shown that traditional developmental education courses can be detrimental to student success. Moreover, many students may be unnecessarily placed into those courses by traditional single-test-based placement practices.[1] Colleges have also been changing how they place students into courses, with many moving away from using standardized tests to assess students' college readiness and instead using multiple measures assessment (MMA), which involves considering alternative measures of students' performance—such as high school grades or GPA—to better place students.[2] The COVID-19 pandemic, which all but upended traditional placement practices because it was often not possible to offer in-person standardized tests, further motivated a shift toward alternative placement practices—often with limited evidence about what placement practices work best (and for whom) and little guidance on how to implement them.[3]

Over the past 10 years, the Center for the Analysis of Postsecondary Readiness (CAPR) has made strong progress in establishing evidence about what types of developmental education reforms can improve students' success. While the evidence for MMA is strong, this reform—and the best practices for its implementation—have yet to spread widely to many colleges and states.[4] Moreover, despite growing support for MMA, many faculty and staff members do not fully trust MMA or are resistant to the changes associated with implementing it (such as the decreased role of developmental education). These challenges mean that many colleges may not be implementing the most promising MMA systems and that some may shift back to standardized testing in the post-pandemic environment.

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1. Thomas Bailey, Dong Wook Jeong, and Sung-Woo Cho, "Referral, Enrollment, and Completion in Developmental Education Sequences in Community Colleges," *Economics of Education Review* 29, 2 (2010): 255–270; Charles T. Clotfelter, Helen F. Ladd, Clara Muschkin, and Jacob L. Vigdor, "Developmental Education in North Carolina Community Colleges," *Educational Evaluation and Policy Analysis* 37, 3 (2015): 354–375; Judith Scott-Clayton, "Do High-Stakes Placement Examples Predict College Success?" CCRC Working Paper 41 (New York: Community College Research Center, Teachers College, Columbia University, 2012); Clive R. Belfield and Peter M. Crosta, "Predicting Success in College: The Importance of Placement Tests and High School Transcripts," CCRC Working Paper 42 (New York: Community College Research Center, Teachers College, Columbia University, 2012); Judith Scott-Clayton and Olga Rodriguez, "Development, Discouragement, or Diversion? New Evidence on the Effects of College Remediation Policy," *Education Finance and Policy* 10, 1 (2015): 4–45.
2. Elizabeth Ganga and Amy Mazzariello, *Modernizing College Course Placement by Using Multiple Measures* (Denver, CO: Education Commission of the States, New York: Center for the Analysis of Postsecondary Readiness, 2019); Elizabeth Kopko, Jessica Brathwaite, and Julia Raufman, *The Next Phase of Placement Reform: Moving Toward Equity-Centered Practice* (New York: Center for the Analysis of Postsecondary Readiness, 2022).
3. Susan Bickerstaff, Elizabeth Kopko, Erika B. Lewy, Julia Raufman, and Elizabeth Zachry Rutschow, *Implementing and Scaling Multiple Measures Assessment in the Context of COVID-19* (New York: Center for the Analysis of Postsecondary Readiness, 2021).
4. Elisabeth A. Barnett, Elizabeth Kopko, Dan Cullinan, and Clive R. Belfield, *Who Should Take College-Level Courses?: Impact Findings from an Evaluation of a Multiple Measures Assessment Strategy* (New York: Center for the Analysis of Postsecondary Readiness, 2020); Alyssa Ratledge, *The Latest on Developmental Education Research: What States and Colleges Need to Know* (New York: MDRC, 2020); Dan Cullinan and Dorota Biedzio, *Increasing Gatekeeper Completion: Three-Semester Findings From an Experimental Study of Multiple Measures Assessment and Placement* (New York: MDRC, 2021).

Recognizing these issues, CAPR researchers from the Community College Research Center and MDRC sought to assist colleges and states nationwide with the adoption and implementation of MMA practices that place more students—and allow more students to be successful—in college-level courses. As part of these efforts, CAPR initiated the Expanding the Adoption of Multiple Measures Assessment and Building the Research Base study, which involved working intensively with colleges in Arkansas and Texas to improve their ability to adopt and expand MMA placement systems. Since 2021, CAPR has worked intensively with system leaders and participating study colleges to design and implement MMA placement systems that are based on prior research and local knowledge and preferences. In 2022, CAPR also conducted descriptive and predictive data analyses using placement and transcript data from state systems and their colleges to inform colleges' chosen placement rules. The study colleges went through considerable effort to build systems that were intended to not only improve the placement system, compared with the status quo, but also be sustainable once implemented on a large scale.

The findings in this report are derived from implementation interviews with 12 two- and four-year colleges in Arkansas and Texas. The adoption of MMA, spurred in part by the COVID-19 pandemic, required collaboration among institutional leaders, administrators, faculty members, and advisors. The report presents the contributions of implementation actors and the role of state context and policies. It also reveals the challenges that colleges had to overcome during implementation, such as obtaining staff buy-in, managing student data, and ensuring sufficient staffing.

The study's implementation interviews and cost analysis were driven by three research questions:

1. What is the design of the MMA system at each college?
2. How are colleges adopting MMA practices? What conditions facilitate or hinder the implementation of an MMA system?
3. In each state, what is the average cost, per college, of expanding and implementing MMA systems at the time of the study? What is the average cost by personnel category?

To answer these questions, between December 2022 and April 2023 the research team conducted 1 to 2 group interviews with staff members from 12 colleges, for a total of 22 interviews. Participants included representatives from the admissions, testing, advising, information technology (IT), institutional research, English, and math departments, as well as college leaders.

Table ES.1 shows that two primary approaches to MMA emerged among the colleges in this study: a decision rule and decision band. Similarly, colleges also implemented MMA on different timelines. In the pre-interview survey, the colleges were asked to indicate whether they were preparing to implement an MMA system, piloting one, or if they had already implemented a system on a large scale. Colleges that were preparing to implement MMA were in the design or planning stages, determining what measures and placement thresholds to use. Institutions that were conducting pilots were only using their new placement practices on a subset of students, not the entire student population. The remaining colleges were using MMA to place their entire student body. These colleges may or may not have conducted a pilot with a subset of students. By 2022, one institution was still conducting a pilot, three were preparing to implement MMA, and six had implemented a system at full scale.

Table ES.1. Multiple Measures Assessment System Features, by Study College

Study College	Institution Type	Multiple Measures Assessment Status[a]	Type of Placement System	Measure Used			
				Cumulative High School GPA	Subject-Specific High School GPA	High School Coursetaking	Placement Test(s)
Arkansas study colleges							
Arkansas State University Mid-South	4-year	Implemented on a large scale	Decision rule	X			ACT, SAT, ACCUPLACER
Cossatot Community College	2-year	Preparing for implementation	Decision rule	X			Used but unspecified
NorthWest Arkansas Community College	2-year	Piloting	Decision rule	X		X	ACT, SAT, ACCUPLACER
Southern Arkansas University Magnolia	4-year	Implemented on a large scale	Decision band	X			ACT, SAT, ACCUPLACER
Southern Arkansas University Tech	2-year	Implemented on a large scale	Decision rule	X		X	ACT, SAT, ACCUPLACER
Texas study colleges							
Alamo Colleges District	2-year	Implemented on a large scale	Decision rule	X	X	X	ACT, SAT, TSIA/TSIA2
El Paso Community College	2-year	Implemented on a large scale	Decision band	X	X	X	ACT, SAT, TSIA/TSIA2
Lee College	2-year	Implemented on a large scale	Decision band	X		X	ACT, SAT, TSIA/TSIA2
Southwest Texas Junior College	2-year	Preparing for implementation	Decision band	X	X	X	ACT, SAT, TSIA/TSIA2
University of Texas at Arlington	4-year	Preparing for implementation	Decision rule	X		X	ACT, SAT, TSIA/TSIA2

(continued)

Table ES.1. (continued)

SOURCE: Pre-interview surveys sent to the study colleges prior to data collection.

NOTES: Only institutions that completed pre-interview surveys are included in this table. While the team conducted interviews with staff members from Arkansas State University Jonesboro and Texas Southern University, the colleges did not return pre-interview surveys. Faculty and staff members at Texas A&M University–Texarkana participated in coaching calls and technical assistance efforts but declined to participate in implementation interviews.

Colleges that were preparing to implement MMA were in the design or planning stages, determining what measures and cut scores to use. Institutions that were conducting pilots were only using their new placement practices on a subset of students. Colleges implementing on a large scale were using their new placement practices on the entire student population, as measures allowed.

Decision rules consist of a series of rules that systematically assess each chosen measure against a predetermined threshold. If the threshold is satisfied, a placement is determined; otherwise, the next rule is assessed. Decision bands, on the other hand, are specific decision rules that apply only to students who fall within a designated range on a particular indicator (like high school GPA or a placement test score), typically just below the established cutoff.

[a]MMA status is reported as of the time of interviews, between December 2022 and April 2023.

Summary of Findings

Broadly, MMA systems were simple and largely similar across institutions. Though the study colleges implemented MMA on varying timelines, their systems often included similar approaches and components—such as decision bands or rules—and a reliance on measures such as high school GPA, high school coursetaking, and placement tests. These decisions were influenced by research that documented the benefits of adopting simpler models with fewer measures over more complicated systems (such as an algorithm approach). Many institutions reported adopting MMA simultaneously with other college-wide efforts, some of which established committees of faculty and staff members, which aided efforts to implement MMA more efficiently and effectively than might have otherwise been possible.

Varying MMA implementation timelines provided an opportunity for late adopters to learn from early adopters. Colleges in both states began implementation at different times, with some colleges adopting and expanding an MMA system well before others even began experimenting with alternative placement policies. Communication and collaboration between colleges at different stages of the implementation process provided an opportunity for early adopters to impart state-specific insights and considerations that aided later adopters in the design and implementation of MMA.

Flexibility among—and communication with—staff members was crucial when beginning MMA adoption. When making decisions about MMA systems, administrators, faculty members, and advisors were often brought together to plan, review, or approve MMA procedures and features. Leaders of a college system in Texas visited each campus throughout the implementation phase to explain policy updates, answer questions about procedure, and provide faculty and staff members with updates about the positive impact of MMA. Similarly, internal communication helped facilitate collaboration and encouraged flexibility in colleagues from various functional areas and roles—such as admissions and testing, institutional research, and IT—who sometimes had to engage in atypical tasks to launch MMA systems.

The dissemination of context-specific data about the predictability and accuracy of MMA generated buy-in among faculty and staff members. Among study colleges, college- and state-specific data

that demonstrated the predictability and accuracy of using alternative measures for placement eased skepticism, kept stakeholders engaged, and fostered buy-in for MMA adoption. Interviewees from several colleges said that this was because the data demonstrated the potential impact of the new placement system on their specific student population and unique campus context.

Proactively liaising with high schools and automating aspects of the placement system facilitated the collection and use of alternative measures for placement. College staff members that reached out to local high schools about changes in placement policy experienced a smoother process of obtaining student transcripts. Some college staff members met with guidance counselors to explain which courses were useful for placement into college-level courses. Among colleges that automated some aspects of their placement system—such as consolidating student placement measures and demographic information into one advisor-facing dashboard and auto-importing measures—advisors reported greater efficiency during the placement process. Automation efforts eased the time burden on advisors to access and collect measures needed for placement.

Collaboration between departments and the flexibility of faculty and staff members helped colleges implement MMA. Several interviewees acknowledged that MMA adoption was time-consuming and required adjustments in staffing. However, most colleges were able to adopt MMA procedures without needing to hire additional staff members. This is because colleges that formed cross-functional teams and fostered collaboration between departments were able to adjust to and manage the system change without increasing the number of staff members. In other cases, supporting existing staff members with innovative approaches like peer coaching also helped to overcome resource constraints and facilitate a smoother transition to an MMA system.

Personnel expenses were the predominant cost of MMA implementation, but the staff members involved—and the amount of time they contributed—varied by state. Data systems and state policy may create conditions that require different staff members to change the processes underlying course placement. In Arkansas, the registrar had the most important role in the process, with the greatest time commitment to MMA implementation. In Texas, the bulk of the work was carried out by advisors and administrators. In both states, costs were relatively low, especially when one considers the large number of students going through the placement systems. Given the positive evidence base for MMA from previous studies, these costs are likely justified by improved student outcomes.

1 Introduction

Research has shown that traditional developmental education courses can be detrimental to student success. Moreover, many students may be unnecessarily placed into those courses by traditional single-test-based placement practices.[1] As a result, leaders at many colleges and universities are rethinking their approach to developmental education and implementing bold reforms.[2] Some states, such as California and Florida, no longer require students to take developmental education courses; several more states—including Texas, Tennessee, Georgia, Colorado, and Nevada—are pushing colleges to enroll students with developmental needs directly into college-level courses with corequisite support.[3] Colleges have also been changing how they place students into courses, with many moving away from using standardized tests to assess students' college readiness and instead using multiple measures assessment (MMA), which involves considering alternative measures of students' performance—such as high school grades or GPA—to better place students.[4] The COVID-19 pandemic, which all but upended traditional placement practices because it was often not possible to offer in-person standardized tests, further motivated a shift toward alternative placement practices—often with limited evidence about what placement practices work best (and for whom) and little guidance on how to implement them.[5]

The Center for the Analysis of Postsecondary Readiness (CAPR), a U.S. Department of Education Institute of Education Sciences–funded national research and development center, is led by MDRC and the Community College Research Center. The center documents changes in developmental education reform across the United States and conducts rigorous studies of innovative assessment and instructional practices. Over the past 10 years, CAPR has made strong progress in establishing evidence about what types of developmental education reforms can improve students' success. MMA is one of the most promising. However, this reform—and best practices for its implementation—have yet to spread widely to many colleges and states.[6]

Over the past 10 years, CAPR has made strong progress in establishing evidence about what types of developmental education reforms can improve students' success.

1. Bailey, Jeong, and Cho (2010); Clotfelter, Ladd, Muschkin, and Vigdor (2015); Scott-Clayton (2012); Belfield and Crosta (2012); Scott-Clayton and Rodriguez (2015).
2. Parker (2012).
3. California Community Colleges (2022); Fla. Admin. Code R. 6A-10.035; Edgecombe (2011); Texas Higher Education Coordinating Board (2018); the College System of Tennessee (2021); Delaney and Beaudette (2013); Colorado Commission on Higher Education (2021); Nevada System of Higher Education (2021).
4. Ganga and Mazzariello (2019); Kopko, Brathwaite, and Raufman (2022).
5. Bickerstaff et al. (2021).
6. Barnett, Kopko, Cullinan, and Belfield (2020); Ratledge (2020); Staples (2020); Cullinan and Biedzio (2021).

Moreover, despite growing support for MMA, many faculty and staff members do not fully trust MMA or are resistant to the changes associated with implementing it (such as the decreased role of developmental education). These challenges mean that many colleges may not be implementing the most promising MMA systems and that some may shift back to standardized testing in the post-pandemic environment.

Recognizing these issues, CAPR researchers, with support from the Ascendium Education Group, sought to assist colleges and states nationwide with the adoption and implementation of MMA practices that place more students—and allow more students to be successful—in college-level courses. As part of these efforts, CAPR initiated the Expanding the Adoption of Multiple Measures Assessment and Building the Research Base study, which involved working intensively with colleges in Arkansas and Texas to improve their ability to adopt and expand MMA placement systems and to build knowledge about how these systems can be designed and implemented in various developmental education reform environments and state policy contexts.

Since 2021, CAPR has worked intensively with system leaders and participating study colleges to design and implement MMA placement systems that are based on prior research and local knowledge and preferences. In 2022, CAPR also conducted descriptive and predictive data analyses using placement and transcript data from state systems and their colleges to inform colleges' chosen placement rules. The study colleges went through considerable effort to build systems that were intended to not only improve the placement system, compared with the status quo, but also be sustainable once implemented on a large scale. Between 2022 and 2023, the colleges also engaged in implementation and cost research, as described herein. The project is scheduled to conclude in 2024.

This report describes the process of expanding MMA systems at the study colleges and summarizes both major challenges and factors that supported successful implementation. The presentation of research findings highlights any differences that may be explained by specific state or college policies and legislation. A cost analysis augments the implementation findings with information about the level of effort associated with expanding MMA beyond that of previous status quo placement activities, broken down by personnel categories (such as testing and advising). Three research questions drive this study:

1. What is the design of the MMA system at each college?
2. How are colleges adopting MMA practices? What conditions facilitate or hinder the implementation of an MMA system?
3. In each state, what is the average cost, per college, of expanding and implementing MMA systems at the time of the implementation study? What is the average cost by personnel category?

2 Background

Historically, incoming community college students' college readiness has been assessed using standardized tests such as ACCUPLACER. However, traditional placement systems may lead to misplacements, especially among students who might have passed college-level courses if given the chance but were instead directed into developmental education courses based on their test scores alone.[1] Misplacements are particularly concerning when considering the increased costs and time associated with participation in developmental education, which can serve as a barrier to overall success for some students—particularly students from historically marginalized groups, who are disproportionately represented in developmental education courses.[2]

A growing body of research has shown that using multiple measures assessment (MMA) to increase access to college-level courses may improve student outcomes by addressing challenges associated with traditional placement systems.[3] For one, MMA relies on alternative performance metrics—such as high school GPA and other transcript information—to better predict whether students can be successful in college-level courses, often increasing the number of students who are permitted to enroll in those courses.[4] MMA placements may also reduce barriers for students who suffer from testing anxiety or whose academic math or English skills have not been in use in the time that has elapsed since formal education. Specifically, the use of alternative measures offers students ways to demonstrate college readiness through alternative means rather than focusing solely on a standardized test that may not accurately reflect a student's academic capabilities or potential for success. Finally, research has shown that alternative placements are more cost-effective for both students and colleges compared with traditional developmental education programs.[5]

Using MMA to increase access to college-level courses may improve student outcomes by addressing challenges associated with traditional placement systems.

In recent years, MMA has gained considerable traction across the United States, with several states enacting legislation that requires the use of alternative measures to place students. In California, community colleges are required to use high school performance data when placing students, and they are prohibited from requiring students to enroll in remedial English or math coursework.[6]

1. Scott-Clayton (2012).
2. Rodríguez, Bowden, Belfield, and Scott-Clayton (2015); Bailey, Jeong, and Cho (2010).
3. Cullinan et al. (2019).
4. Scott-Clayton (2012).
5. Barnett, Kopko, Cullinan, and Belfield (2020).
6. Assembly Bill 705 (2017).

Other states, like Florida, have approached placement reform by permitting—rather than requiring—colleges to use alternative measures.[7]

States that were eligible to participate in the current study served demographically diverse student populations, were able to provide access to historical transcript and placement data, and had state leaders who were committed to implementing evidence-based developmental education reform. Of the several states CAPR identified as being well positioned to collaborate with technical assistance efforts, Arkansas and Texas were selected for study participation.

At the start of the study in 2021, colleges in Arkansas and Texas—in most cases—had adopted MMA practices out of necessity due to the COVID-19 pandemic. Importantly, the states' official placement policies and approaches to supporting institutions' implementations of MMA differed in part due to the overall structure of their higher education systems.

Arkansas

Instead of setting requirements at the state level, Arkansas' decentralized governance structure gives community colleges significant autonomy to determine their specific test and placement policies. Though colleges are required to report a college-readiness exam score for every student (from the ACT or ACCUPLACER, for example), Arkansas Division of Higher Education policy guidelines permit colleges to use any evidence-based factor in addition to—or instead of—traditional standalone assessments, as long as the placement system reflects at least a 75 percent likelihood that the students can earn a "C" or better in the courses they are placed in.[8] Both before and after the onset of the pandemic, state practices allow institutions to self-enforce this policy. In turn, study colleges had significant autonomy to design and implement placement practices, even before the pandemic.

Texas

The Texas Success Initiative (TSI) mandates that all entering, nonexempt students take the Texas Success Initiative Assessment (TSIA or TSIA2), a state-approved standardized test developed by the College Board to measure college readiness in English language arts and math.[9] In 2020, at the start of the pandemic, Texas' Commissioner of Higher Education approved a TSI waiver for all nonexempt students who lacked access to the TSIA or whose TSIA scores fell below the minimum threshold

7. Mokher et al. (2023).

8. Reporting of placement exam scores is required by Arkansas code (Ark. Code Ann. §6-80-107). According to the Division of Elementary and Secondary Education, by federal and state law, it is mandatory for students to participate in the standardized assessment. Arkansas public high schools offer the ACT to all students in the eleventh grade. See Arkansas Department of Higher Education (2016).

9. The TSIA2, launched in January 2021, is largely similar to the original exam but combines the reading and writing sections. Among other things, students who have met college readiness benchmarks on the SAT, ACT, or State of Texas Assessments of Academic Readiness exams—or who have obtained certain scores in Advanced Placement and International Baccalaureate tests—are considered TSI exempt. See Texas Education Agency (2023).

for college-level placement.[10] This statewide waiver gave institutions two options: students could be enrolled in a college-level course with corequisite support or enrolled in a college-level course without support. In place of the TSIA, the Texas Higher Education Coordinating Board allowed institutions to use other indicators, such as high school GPA, high school coursetaking records, and evidence of noncognitive factors (for example, measures of students' mindset or motivation) to determine placements for their students. The individual colleges could determine how to use these alternative measures to place students (for example, they could choose which GPA to use as a minimum threshold).[11] During this period, students with TSIA scores that exceeded the threshold for college-level placement were granted access to college-level courses without support.[12] TSI waivers were available through the 2021–2022 academic year.[13]

10. Texas Higher Education Coordinating Board (2020).
11. Texas Higher Education Coordinating Board (2020).
12. 19 Tex. Admin. Code § 4.57 (2020).
13. Texas Higher Education Coordinating Board (2024).

3 Study Design

In 2021, the Center for the Analysis of Postsecondary Readiness (CAPR) began working intensively with Arkansas and Texas state organizations—including the Arkansas Division of Higher Education, Arkansas Community Colleges, and the Texas Higher Education Coordinating Board—to build their states' ability to adopt and expand multiple measures assessment (MMA) placement systems. In the same year, 13 institutions across both states opted to participate as study colleges.

The study colleges comprise nine community colleges (four from Arkansas and five from Texas) and four open-admission four-year institutions (two from each state). Although colleges had significant autonomy in determining strategy and design, all study colleges received regular MMA-related technical assistance from CAPR researchers during the four-year project period (2021 to 2024). Stakeholders from the study colleges participated in regular coaching calls with CAPR researchers, who provided college-specific advice and guidance on how to implement MMA that was based on existing research and their previous experiences and was tailored to each college's place in the design and implementation process. Additionally, in the first two years of the project period, CAPR hosted four meetings—two tailored to the state context in Arkansas and two to the context in Texas. All public colleges from the state, regardless of study participation, were invited to attend these meetings. During the day-long meetings, CAPR researchers presented the most up-to-date evidence on MMA implementation and facilitated opportunities for inter- and intra-college engagement and collaboration. Finally, in the third year of the study, representatives from the colleges were invited to participate in affinity groups that were organized by functional role in the implementation process, with the goal of providing a valuable forum for problem-solving among peers.

All study colleges agreed to participate in implementation, cost, and descriptive research during the second and third years of the project to facilitate learning about MMA in a diverse set of state and college contexts. Importantly, colleges were not restricted in how they used (or did not use) the information and resources provided through technical assistance. Moreover, while the study colleges were encouraged to expand their MMA systems to place all incoming students by 2024, the colleges were permitted to implement them at their own pace. Therefore, implementation research was used to understand and document the MMA development and implementation processes of the colleges, in urban, rural, and diverse student-population contexts. To this end, CAPR researchers reviewed action plans and process maps to document the MMA models that were developed by the study colleges and conducted interviews with faculty and staff members who were involved in the development and implementation of the placement systems at each college.

Implementation research was used to understand and document the MMA development and implementation processes of the colleges, in urban, rural, and diverse student-population contexts.

Between December 2022 and April 2023, the research team conducted 1 to 2 group interviews with staff members from 12 of the 13 study colleges, for a total of 22 interviews.[1] Participants included representatives from the admissions, testing, advising, information technology (IT), institutional research, English, and math departments, as well as college leaders. Participants' answers were audio-recorded and detailed notes were taken. Interviews were transcribed and uploaded to Dedoose, a qualitative analysis application. The researchers developed a codebook to analyze a range of themes, such as design rationale and experiences implementing MMA. They paid particular attention to understanding implementation obstacles—and how they were overcome—and to soliciting additional critical information for institutional leaders and policymakers that could facilitate the expansion of alternative placement systems. All colleges that participated in an implementation interview also completed a pre-interview survey that included questions related to MMA design and the timing of implementation.

For the cost study, all study colleges were sent a template—with fields for the title, activities, hours spent, and compensation amount—to be completed for every faculty and staff member with a role in MMA implementation. These data were collected for the 2022 calendar year. Additional fields were available to note materials and facilities used on MMA expansion, as well as overhead rates and any strictly research-related costs. CAPR weighted reported hours by reported wages and categorized these amounts by faculty and staff members' role in implementation. These costs were then averaged in each state by personnel category to provide insight into the typical levels of effort by role in each state. Finally, the per-student cost of the MMA system was estimated using first-time, 12-month enrollment among degree-seeking students at the study colleges.

1. Due to scheduling constraints among staff members, the thirteenth study college did not participate in implementation research.

4 Approaches to Multiple Measures Assessment

Unlike a traditional placement system, where standardized tests are primarily used to determine readiness for college-level coursework, a multiple measures assessment (MMA) system also uses measures such as high school GPA, high school coursetaking, and noncognitive assessments. While some institutions view MMA as a tool to promote equity, systems must be intentionally designed to lead to more equitable access to college-level coursework among marginalized students.[1] When MMA systems are not designed with equity in mind, they can improve overall student outcomes, but existing disparities by race, ethnicity, socioeconomic status, or age may not improve.[2]

Two primary approaches to MMA implementation emerged at the study colleges. Institutions had several MMA approaches to choose from, including (but not limited to) decision bands and decision rules, as depicted in Figure 4.1.

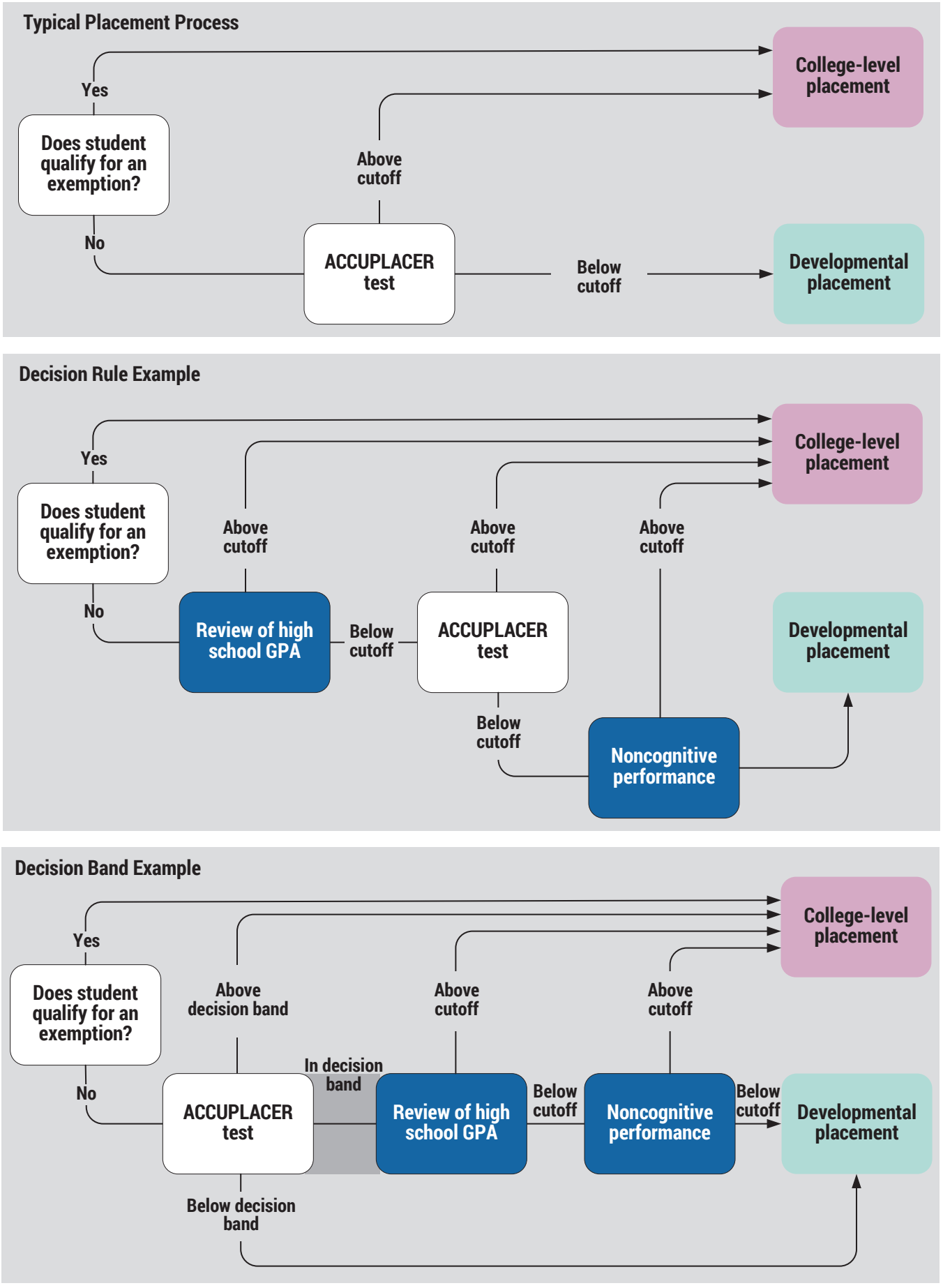
A decision band approach is used to evaluate the subset of students whose placement indicators on a selected measure fall below an institution's minimum threshold for college-level enrollment but above the threshold for required enrollment in developmental education. Students with placement indicators that fall between these thresholds—that is, within the decision band—are placed according to information derived from additional measures. Placement thresholds, or "cut scores," can, and often do, vary by subject area. Likewise, the rationale for selecting specific cut scores may vary across institutions, ranging from outside research or internal data analysis to preconceptions regarding the reliability of certain measures.

Decision rules use a sequence of rules and measures to place students by comparing students' scores or performance against a single cut score.

Unlike decision bands, where there is an acceptable range of cut scores, decision rules use a sequence of rules and measures to place students by comparing students' scores or performance against a single cut score. Once students meet a threshold, they receive a placement. If they do not meet the first threshold, another measure is evaluated until a placement is generated. For example, an institution might first assess whether a student's ACCUPLACER score meets or exceeds the minimum acceptable threshold for college-level enrollment (as determined by the institution). If it does not, the student's high school GPA could be examined to see if it meets the minimum threshold to enter college-level coursework. If the student's GPA is above the selected cut score, the student is placed into the college-level course.

1. Kopko, Brathwaite, and Raufman (2022).
2. Kopko, Daniels, and Cullinan (2023).

Figure 4.1. Examples of Placement Systems



The types of MMA placement systems that were used by the study colleges—as well as the names of the colleges and whether they are two- or four-year institutions—are shown in Table 4.1. The table also displays the status of MMA implementation at the colleges and the types of measures they used for placement.

More study colleges in Texas used decision bands; decision rules were more popular in Arkansas. There are more complex MMA approaches, but decision bands and decision rules are easier to implement and can be just as beneficial—they possess as strong a predictive validity as the more complicated and costlier alternatives.[3] All ten institutions that completed a pre-interview survey reported using cumulative high school GPAs in their placement systems; only three study colleges (all in Texas) reported using subject-specific high school GPAs. High school coursetaking was also incorporated into placement systems, with four of the five study colleges in Texas and two of the five study colleges in Arkansas using this measure. Finally, all study colleges that completed pre-interview surveys reported using placement tests in their MMA systems, though the cut scores and specific tests varied.[4]

Phases of Multiple Measures Assessment Implementation

The study colleges implemented MMA placement systems on different timelines. On the pre-interview survey, the colleges were asked to indicate whether they were preparing to implement an MMA system, piloting one, or if they had already implemented a system on a large scale. Colleges that were preparing to implement MMA were in the design or planning stages, determining what measures and cut scores to use. Institutions that were conducting pilots were only using their new placement practices on a subset of students, not the entire student population. The remaining colleges were using MMA to place their entire student body. These colleges may or may not have conducted a pilot with a subset of students. By 2022, one institution was conducting a pilot, three were preparing to implement MMA, and six had implemented a system at full scale.

Institutions engaged in a variety of steps between beginning implementation and implementing on a large scale, as evidenced by differing timelines. Some of the variation in implementation timeline can be attributed to whether institutions conducted pilots, changes in staffing, necessary upgrades to technology, and more. Further, timelines were also impacted by the level of support MMA received from faculty and staff and the time necessary to garner more support, which could include time-consuming tasks such as data analysis and dissemination to stakeholders.

While some colleges first began experimenting with MMA at the start of this project, others had already been using it to place students. Two colleges in Arkansas and one college in Texas were particularly ahead of the curve in terms of implementation; Southern Arkansas University Magnolia

3. In contrast to decision bands or decision rules, an algorithm approach uses historical data to predict students' probability of success in college-level courses. No study colleges used an algorithm approach. See Cullinan and Biedzio (2021); Cullinan and Kopko (2022).

4. College-specific cut scores are available upon request.

Table 4.1. Multiple Measures Assessment System Features, by Study College

Study College	Institution Type	Multiple Measures Assessment Status[a]	Type of Placement System	Measure Used			
				Cumulative High School GPA	Subject-Specific High School GPA	High School Coursetaking	Placement Test(s)
Arkansas study colleges							
Arkansas State University Mid-South	4-year	Implemented on a large scale	Decision rule	X			ACT, SAT, ACCUPLACER
Cossatot Community College	2-year	Preparing for implementation	Decision rule	X			Used but unspecified
NorthWest Arkansas Community College	2-year	Piloting	Decision rule	X		X	ACT, SAT, ACCUPLACER
Southern Arkansas University Magnolia	4-year	Implemented on a large scale	Decision band	X			ACT, SAT, ACCUPLACER
Southern Arkansas University Tech	2-year	Implemented on a large scale	Decision rule	X		X	ACT, SAT, ACCUPLACER
Texas study colleges							
Alamo Colleges District	2-year	Implemented on a large scale	Decision rule	X	X	X	ACT, SAT, TSIA/TSIA2
El Paso Community College	2-year	Implemented on a large scale	Decision band	X	X	X	ACT, SAT, TSIA/TSIA2
Lee College	2-year	Implemented on a large scale	Decision band	X		X	ACT, SAT, TSIA/TSIA2
Southwest Texas Junior College	2-year	Preparing for implementation	Decision band	X	X	X	ACT, SAT, TSIA/TSIA2
University of Texas at Arlington	4-year	Preparing for implementation	Decision rule	X		X	ACT, SAT, TSIA/TSIA2

(continued)

Table 4.1. (continued)

SOURCE: Pre-interview surveys sent to the study colleges prior to data collection.

NOTES: Only institutions that completed pre-interview surveys are included in this table. While the team conducted interviews with staff members from Arkansas State University Jonesboro and Texas Southern University, the colleges did not return pre-interview surveys. Faculty and staff members at Texas A&M University–Texarkana participated in coaching calls and technical assistance efforts but declined to participate in implementation interviews.

Colleges that were preparing to implement MMA were in the design or planning stages, determining what measures and cut scores to use. Institutions that were conducting pilots were only using their new placement practices on a subset of students. Colleges implementing on a large scale were using their new placement practices on the entire student population, as measures allowed.

Decision rules consist of a series of rules that systematically assess each chosen measure against a predetermined threshold. If the threshold is satisfied, a placement is determined; otherwise, the next rule is assessed. Decision bands, on the other hand, are specific decision rules that apply only to students who fall within a designated range on a particular indicator (like high school GPA or a placement test score), typically just below the established cutoff.

[a]MMA status is reported as of the time of interviews, between December 2022 and April 2023.

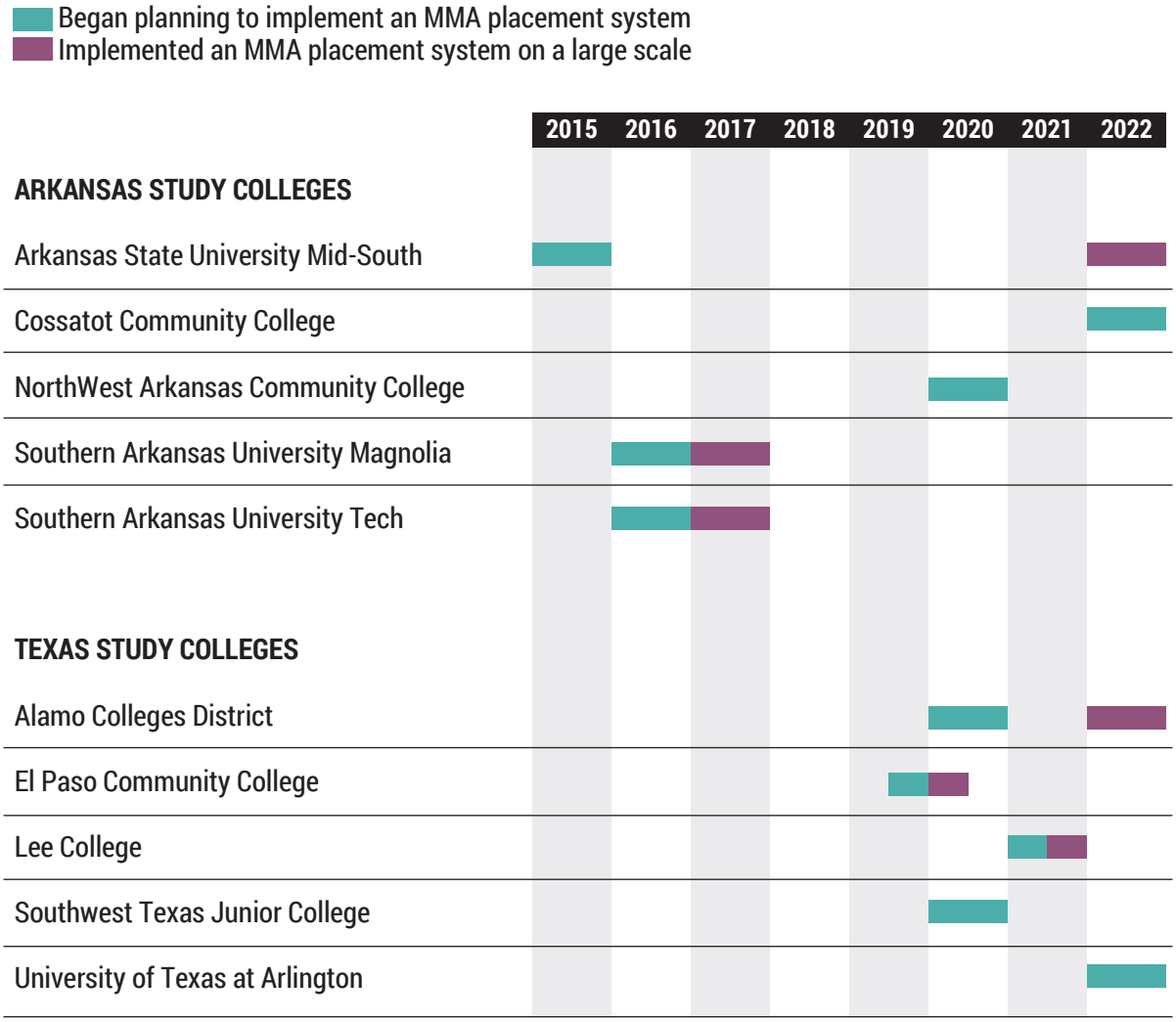
(SAU Magnolia) and Southern Arkansas University Tech first introduced MMA placement in 2017, while El Paso Community College began experimenting with MMA in 2019. Of the remaining study colleges, an MMA system was being piloted or was already at full scale at four Arkansas colleges and three Texas colleges at the start of this study. Figure 4.2 shows the implementation timeline for each study college. The current study provided an opportunity for collaboration between early and late adopters of MMA. In Arkansas, for example, SAU Magnolia implemented MMA earlier than other colleges and served as a model. The college was encouraged by the Arkansas Division of Higher Education to use its experience and lessons learned to help other colleges that were in the planning or piloting phases of implementation. In fact, the Arkansas Division of Higher Education specifically asked SAU Magnolia to join this study to continue supporting MMA expansion across the state of Arkansas by working with study colleges that were just beginning to explore MMA placements. Meanwhile, other early adopters, like El Paso Community College and Southern Arkansas University Tech, were able to use the study as an opportunity to refine their approaches to MMA by learning about the work being done at other colleges.

Varying State Contexts and MMA Implementation

Arkansas and Texas state policies, in response to the COVID-19 pandemic, provided an unforeseen window of opportunity for change, ultimately facilitating many colleges' adoption of MMA. Further, while implementing MMA systems, some colleges adopted corequisites and worked with intermediaries or organizations like Strong Start to Finish and Achieving the Dream to implement math pathways reforms.

More faculty and staff members from colleges in Texas mentioned challenges caused by state policies than those in Arkansas colleges. This could be attributed to Arkansas' decentralized state context, which allowed each college to determine its placement system. In Texas, where the centralized state system resulted in state-driven changes to MMA policy, staff members had to adapt to subsequent iterations and clarifications of the TSI waiver, which resulted in changes to the list of accepted measures and required institutions—in some cases—to revise their MMA systems.

Figure 4.2. Timeline of Multiple Measures Assessment Implementation, by Study College



SOURCE: Pre-interview surveys sent to the study colleges prior to data collection.

NOTES: Only institutions that completed pre-interview surveys are included in this figure. While the team conducted interviews with staff members from Arkansas State University Jonesboro and Texas Southern University, the colleges did not return pre-interview surveys. Faculty and staff members at Texas A&M University–Texarkana participated in coaching calls and technical assistance efforts but declined to participate in implementation interviews.

Before implementing an MMA system on a large scale, some of the schools conducted a pilot.

While implementation activities were broadly similar across study colleges, these differences in state and policy context led to unique implementation environments in each state. For example, as described earlier, conversations about MMA between some Arkansas institutions and the Arkansas Division of Higher Education had already started. Further, the less-prescriptive policy environment in Arkansas allowed for more flexibility as colleges planned their MMA systems. While colleges in Arkansas are required to report a test score for each student, the State is flexible about the types of tests that qualify (examples include the ACT, SAT, and ACCUPLACER) and about whether and how colleges use test scores to determine placement. In other words, institutions in Arkansas had

greater autonomy over their MMA systems. Further, all students who attend a public high school in Arkansas are given the opportunity to take the ACT in eleventh grade, enabling some students to forego further testing upon entering college.

While one Texas institution reported using MMA before the TSI waiver in 2020, the waiver prompted the remaining Texas study colleges to implement MMA systems. Although the TSI waiver officially ended after summer 2022, colleges that participated in this study were allowed to continue using MMA, whereas non-study colleges that did not participate reverted to following TSI guidelines. In January 2023, the Texas Higher Education Coordinating Board clarified that participating colleges must administer the TSIA2 to all students as part of the placement process and that for students whose scores did not qualify them for college-level courses, alternative measures should be limited to cumulative high school GPA or subject-specific coursetaking.

5

Multiple Measures Assessment Implementation Actors

While institutional leaders played an important role in the implementation of multiple measures assessment (MMA) at multiple colleges, key decisions were often made by administrators, faculty members, and advisors, which is typical of MMA adoption in other contexts.[1] Stakeholders were brought together via committees, councils, or working groups to plan, review, or approve MMA procedures and features. This internal collaboration—which brought together colleagues from various functional areas and roles—was crucial to securing buy-in among stakeholders. The role of administrators, faculty members, and advisors in MMA planning has been discussed at length elsewhere.[2] This report describes the planning activities of staff members who have received less focus, including those in admissions and testing, institutional research, and information technology.

Admissions and Testing

Since admission and testing offices collect the required admission documents, they provided crucial student record data on alternative measures typically used for MMA. The collection of student records by admissions and testing offices was facilitated in Arkansas by Triand, the state-approved data recordkeeping system that is used to send transcripts between districts or high schools and colleges, allowing college staff members to proactively pull the high school transcripts of students who apply. Triand was useful for admissions and testing staff members because it allowed them to access ACT scores in addition to transcripts.

Staff members at Texas colleges developed a range of processes to accurately capture and communicate relevant data.

In the absence of a system like Triand, data sharing between the K-12 and higher education institutions in Texas was more challenging. In response, staff members at Texas colleges developed a range of processes to accurately capture and communicate relevant data that showed which students earned passing scores on the TSIA, which students did not, and who was placed using MMA. At times, this required collaboration between different departments, such as admissions, advising, and testing.

Institutional Research

For multiple colleges in both states, implementing MMA began with internal data analysis, often by the institutional research department staff. This crucial first step allowed colleges to begin making data-informed decisions about which measures and cut scores to select. Specifically, institutional

1. Barnett, Kopko, Cullinan, and Belfield (2020); Bickerstaff et al. (2021); Cullinan et al. (2019).
2. Barnett et al. (2018); Cullinan et al. (2018).

research staff members supported efforts to determine which measures to use for placement and provided data on selected measures to determine where to set cut scores. The data used to make decisions about cut scores most frequently included standardized test scores, high school GPAs, and success rates in college-level courses. Often, measures and cut scores were chosen based on how well they predicted students' probability of success in college-level courses and the acceptable minimum likelihood of success in those courses.[3] By providing data on measures such as the high school GPAs, subject-specific GPAs, and standardized test scores of students who have historically been successful in college-level coursework, institutional research staff members helped college stakeholders make data-informed decisions at multiple institutions. However, it is important to note that institutional research staff members in Texas also had to take into account the TSIA cut scores that were determined by the State.

Information Technology

IT staff members played an instrumental role in setting up the technology needed to run an MMA placement system. At one institution, advising staff members were not able to see placement scores in their existing software. By collaborating with their IT department, they were able to describe what they hoped to look up, ultimately gaining access to the placement scores they needed. IT staff members at another institution created fields in their student information system to track how advisors placed students using multiple measures. As a staff member at a different institution explained, IT empowered the staff to access data that were already available. While the IT departments at almost all the colleges were involved in setting up the MMA system, one institution contracted with an external company to modify its student information system because it did not have an "in-house programmer."

In addition to active internal collaboration, communications and engagement between faculty and staff members were ongoing. Examples of these activities included school- or department-wide meetings, faculty meetings, and the informal sharing of documents and other relevant information via email. Implementation activities also extended beyond the study colleges. Multiple interviewees said they spoke informally with faculty and staff members from other colleges at conferences or meetings and intentionally sought input from others who were further along in the implementation of MMA. External collaboration was an important way to gain knowledge from the successes of—and lessons learned by—others.

The following chapter describes how MMA implementation was influenced by various factors, some of which facilitated or hindered its adoption, and provides examples of how institutions and institutional actors overcame implementation challenges.

3. Kopko, Daniels, and Cullinan (2023).

6

Factors that Influenced Multiple Measures Assessment Implementation

The implementation of multiple measures assessment (MMA) at participating study colleges was spurred by various factors, including colleges' efforts to improve the accuracy of course placement and reduce the number of students placed into developmental education. While interviews with leaders and the faculty and staff from the study colleges revealed that several factors facilitated the successful implementation of an MMA system, adoption was not without its challenges. This section describes some of the common challenges that college leaders and faculty and staff members experienced and how they overcame them—by obtaining buy-in from the faculty and staff, gathering and managing student data, and ensuring sufficient staffing capacity and resources to bring implementation to full scale.

Faculty and Staff Buy-In

Research shows that it is important to generate buy-in (that is, support) for granting more students access to college-level courses because MMA implementation involves the input and cooperation of many stakeholders.[1] Interviewees corroborated this information and suggested that several factors fostered buy-in, including the prioritization of the project by college leaders, the availability and use of institutional data to support the adoption of multiple measures, and an institutional culture that embraced reform, including supporting student access to college-level courses. Also important was the ability to use simultaneous initiatives, particularly those that arose in response to the COVID-19 pandemic, to increase support for MMA implementation.

Research shows that it is important to generate buy-in for granting more students access to college-level courses.

Interviewees discussed some common challenges associated with generating buy-in: Some faculty and staff members were uncertain that GPA was a reliable measure of college readiness and were confused by changes to state-level MMA guidance. Fortunately, most college leaders were able to address these challenges and convince institutional stakeholders to accept the changes. Indeed, interviews revealed that two strategies were particularly effective at establishing buy-in.

Disseminate context-specific data analysis findings. At colleges such as Southern Arkansas University Magnolia (SAU Magnolia), Arkansas State University Mid-South, and Southwest Texas Junior College, faculty and staff members described concerns regarding the reliability of GPA. A

1. Bickerstaff et al. (2021); Cullinan et al. (2019); Barnett, Kopko, Cullinan, and Belfield (2020).

member of the leadership team from SAU Magnolia explained that discussions about MMA with colleagues from the college and from other institutions around the state revealed that some faculty and staff members were concerned about the potential relationship between high school quality and how well GPA could predict students' success in college-level courses. The interviewee said there was a perception that "local high schools are giving away those grades and passing everybody, so the GPAs are inflated," particularly during the COVID-19 pandemic when educators may have struggled to find effective ways to teach and grade students. In other words, faculty and staff members were worried that the use of GPA would lead to inaccurate placements. In response, institutional leaders at SAU Magnolia used historical transcript and placement data from the college and around the state to show the correlations between different placement indicators and subsequent pass rates and were able to demonstrate that GPA was among the strongest and most accurate predictors of college readiness. Members of SAU Magnolia's leadership team underscored the role of these state- and college-specific data analyses in alleviating skepticism and generating buy-in. As one member of leadership said, "Once people are able to see what we are seeing in the data and what is best for our students, people are on board. That is the most helpful part." Another leader added, "I still remember sitting in a room and everybody was saying, 'But it matters where they went to school.'" The leader reported replying to the group, "Actually, we've studied it. We've looked at all the data in the state. It doesn't matter where you went to high school," and went on to say, "It was powerful to have data on the reliability of [high school] GPA for thousands and thousands of students across their specific state context, accompanied by various analyses to share."

Ensure proactive communications with stakeholders. The interviews also revealed that rapid changes to state policy made implementation complex and, subsequently, negatively impacted buy-in among faculty and staff members. In Texas, changes to the list of acceptable measures for placement under the MMA study protocol often led to confusion and frustration among stakeholders, who were left to integrate new measures into placement decisions without sufficient notice and without being adequately informed about why modifications were necessary.

Recognizing a need for clearer communication channels across stakeholders, members of the leadership team from Alamo District Colleges coordinated meetings, or "roadshows," with staff members from each campus—including directors of advising, admissions staff members, testing leads, deans, and vice presidents—to discuss updated MMA guidance, address questions and concerns, and make decisions about how to move forward in a unified manner based on state guidance. A member of the leadership team from Alamo District Colleges explained that they did this "because when you start making decisions without talking with the stakeholders or the individuals [who] are working through and serving students, it's going to fail." Roadshow facilitators kept track of frequently asked questions and concerns about state guidance and policy on placement and compiled them on an online SharePoint site, with answers for stakeholders to access after the meetings. A member of the leadership team from Alamo District Colleges stated that "[the changes] have been difficult, but I feel like the channels that we have built in place and the way that we operate has helped us continue to move towards the successful launch of changes."

Obtaining and Accessing Alternative Measures for Placement

Past research indicates that the timely receipt of student transcripts and standardized test scores—coupled with sufficient technological resources and automation of student information systems—can facilitate the implementation of MMA placement practices.[2] Feedback from the current study's implementation interviews with institutional leaders and student-facing personnel aligned with this research.

However, the decision to incorporate high school GPA (and other measures that are not typically required for admission) into their placement practices also meant that study colleges needed to develop new procedures for collecting, storing, and accessing relevant data, which often introduced new and unanticipated implementation challenges.

Intentionally liaise with high schools to facilitate timely data collection. Several interviewees reported experiencing challenges in obtaining GPA and transcript data. In some cases, high schools were slow to respond to requests for transcripts and test scores because they were not able to generate and send the information or because they did not have the capacity to send it sooner. Some interviewees said that delays in obtaining transcripts often meant that large numbers of students who were registered during the summer only became eligible for corequisite courses a few weeks before the beginning of the fall semester. At SAU Magnolia and El Paso Community College, this necessitated adding additional corequisites to the course schedule and identifying educators to teach those courses.

Staff members from some colleges in Texas developed strategies for obtaining student data in a timely manner so they could simultaneously evaluate both GPA and math and English coursetaking to make informed decisions about students' placement. For example, to facilitate cooperation among high schools, El Paso Community College admissions and advising staff members met with high school guidance counselors and informed them how transcripts and GPAs would be evaluated to determine placement in college-level courses. In addition, through Operation College Bound, its high school outreach program, El Paso Community College held pre-registration sessions during the spring months for students, which allowed staff members to obtain student records while they were on-site at a high school. This connection with the high schools gave staff members timely access to student data and allowed them to be prepared for advising sessions once students began college, rather than having to follow up with students after transcripts became available later on.

Automate aspects of the placement system and provide access to relevant student data in one place. Another factor that complicated MMA implementation was a lack of system automation, which would have allowed the electronic transfer and receipt of transcripts and test scores and displayed all the measures in one place. Most interviewees said that the switch to MMA required manual data entry and, subsequently, a great time burden on admissions and advising staff members. Importantly, not all colleges were able to completely automate aspects of their MMA systems.

2. Cullinan et al. (2019).

Colleges in Arkansas had a distinct advantage when obtaining student transcripts and standardized test scores; they used a statewide education department database called Triand. High schools in Arkansas enter student data into Triand, and colleges can access the data for use in their own databases. At Cossatot Community College, a staff member from the registrar's office explained that "for students who have graduated from a high school in Arkansas, we have that high school transcript easily accessible on file through Triand . . . along with the ACT or SAT scores as well." Using Triand, staff members were able to pull high school transcripts, GPAs, and standardized test scores even if students had not requested that transcripts be sent to that college, reported test scores themselves, or met with an advisor yet. At NorthWest Arkansas Community College (NWACC), staff members used Triand to evaluate an estimated 90 percent of transcripts for information relevant to MMA placement, speeding up the advising process. For students who had not yet graduated, college staff members could reach out to the high school for an unofficial transcript. Triand facilitated student data collection for MMA placement, though Arkansas colleges still needed to evaluate the GPAs based on cut scores and college policy.

In the absence of an easily accessible statewide database, several interviewees from Texas colleges reported the need to adopt technological solutions for collecting and managing an influx of newly obtained multiple measures data. At Southwest Texas Junior College, staff members were overwhelmed with data entry until they were able to automate aspects of the placement process. Advisors worked with IT to add fields for each student's high school GPA—as well as indicators for prior coursetaking in math and English—to the student information database, which already contained TSIA and other test scores. This ensured all relevant placement indicators were stored in a single location and could be easily accessed by advisors during placement conversations. Importantly, this relatively small change not only reduced the time spent manually sorting through transcripts and other documents to make placement decisions, it also helped reduce errors caused by the misinterpretation of alternative measures. However, as one member of college leadership said, "Automation doesn't take the place of advising . . . it won't place the student or enroll the student; it will identify students who have criteria for multiple measures." But overall efforts to introduce automation improved the efficiency of placement processes, eased the burden on advisors and facilitated accurate student placement by automating a "safety net" tool that stopped placement if students did not have the appropriate indicator or test score.

Staff Capacity and Collaboration

As previous studies demonstrate, colleges that build capacity by promoting collaboration across functional areas can adapt more easily to the initial demands of implementing MMA procedures and establish processes that allow for expansion.[3] But opportunities for meaningful collaboration are not always recognized, particularly in the early stages of implementation. At many study colleges, for example, advisors spent a lot of time interpreting the additional measures that were used for placement and encountered more frequent questions from students about their eligibility for certain courses, which reduced the advisors' ability to attend to other responsibilities. Interviewees also said that during the launch of the MMA system, faculty and staff members

3. Rutschow, Comier, Dukes, and Zamora (2019).

focused on addressing concerns about implementation within their own departments, rather than collaborating across departments to solve problems. In response to these challenges, college leaders implemented different approaches to help faculty and staff members successfully execute their new responsibilities and collaborate.

Augment advising efforts through innovative programs like peer coaching. Some larger institutions had more flexibility and were better able to implement an MMA system than smaller colleges, especially when it came to adding new steps to the placement process—such as obtaining and reviewing transcripts and GPAs, or explaining to students how MMA opened up new course options. Stakeholders from study colleges said they were able to reduce the burden on advisors by engaging other resources—such as student peers who helped students with course registration—and temporarily assigning additional responsibilities to administrative staff members from other departments. In addition, collaboration between advising staff and faculty members facilitated the development of placement criteria and processes. Several interviewees reported that MMA placement procedures required advisors to take additional time to review transcripts and apply the MMA decision process, which often resulted in less time for individual student interactions. At colleges also implementing corequisites, the pairing of college-level and support courses often required additional effort to ensure students enrolled in the appropriate courses. As a district-wide leader at El Paso Community College explained, many students were confused about which courses they were eligible for and frequently registered for the wrong courses, necessitating a second advising session to correct their enrollment. Because the college could not hire additional advisors to handle the influx of student demands, El Paso Community College developed a peer coaching system. Peer coaches—current students who were specifically trained in corequisite pairings—helped incoming students register for the correct courses immediately after their college advising session. Importantly, the peer coaching system reduced registration errors, thereby saving advisors time previously spent on re-registering students and increasing their time for advising new students.

Facilitate collaboration between faculty and staff members across departments. MMA adoption also resulted in changing job responsibilities and, at times, required faculty and staff members from different departments to work together to define multiple measures criteria and to ensure newly developed processes and procedures were implemented as intended. However, several interviewees lamented the fact that faculty and staff members were not used to working together in the ways that were required to implement an MMA system. One member of the leadership team from NWACC explained that developmental education faculty and staff members "were not talking to each other and getting buried down underneath a lot of needs and curriculum issues." The interviewee attributed this problem to the absence of a space for them to collaborate and problem-solve together.

In response, NWACC created a developmental education team to foster collaboration across departments. The committee was composed of faculty members who taught developmental education courses and staff members from divisions that worked on developmental education. An NWACC administrator explained that "the developmental education committee serves a dual purpose. They are looking at our corequisite model as well as our multiple measures model and other developmental education issues, such as placement into the developmental education

courses." Another member of the leadership team from NWACC said that the developmental education committee looked at MMA data and made recommendations and changes to cut scores and placement criteria for special student populations, such as students with disabilities. The interviewees explained that this committee was the "main foot forward" on ideas related to MMA and anything it decided went to the dean's council. These interviews revealed that NWACC used cross-departmental collaboration to increase the college's capacity to implement MMA.

7

Cost Considerations for Multiple Measures Assessment Implementation

Cost data collection from the study colleges in Arkansas and Texas occurred in 2022 at the end of the spring and fall semesters. Colleges were asked to provide the amount of time staff members spent on multiple measures assessment (MMA) implementation, above and beyond the status quo placement effort that would have occurred in the absence of the new system.[1] These data revealed that expansion and implementation of an MMA system required time from faculty and staff members in a wide range of roles, which reinforces findings from past the Center for the Analysis of Postsecondary Readiness (CAPR) research in New York and Minnesota that showed that advisors; administrators; and members of the faculty, admissions, the registrar, and IT all played a role in MMA implementation.[2] CAPR technical assistance had emphasized the importance of including a wide range of personnel in MMA expansion, and this advice may have influenced the personnel assignments of the study colleges. Table 7.1 shows the average cost of implementing an MMA system in 2022—for both Arkansas and Texas study colleges—and breaks down the numbers by personnel category. While the research team solicited information about any additional material or facility costs, these costs were negligible compared with the amount spent on staff time and included the sort of spaces and materials that would likely be included in overhead rates added to salaries in CAPR calculations of cost (approximately 30 percent).

Data revealed that expansion and implementation of an MMA system required time from faculty and staff members in a wide range of roles.

In Table 7.1, distinct patterns emerge in each state. Administration averages 12 percent of the overall MMA implementation and scaling effort in Arkansas, but nearly twice that in Texas at 23 percent. Institutional research, IT, and admissions had minor roles in both states, but IT and admissions staff members were more involved in Texas than in Arkansas. The overwhelming majority of the Arkansas MMA effort—and 72 percent of the total cost—was borne by registrars, while in Texas registrars played a minor role, costing only 5 percent of the total. Testing staff members had almost no involvement in the Arkansas colleges but had an important role in Texas (costing 15 percent of the total amount). A similar discrepancy can be seen for faculty members—they made up 6 percent of the total cost in Arkansas but 12 percent in Texas—and advisors, who made up 7 percent of the total cost in Arkansas but 35 percent in Texas.

1. In 2022, the amount of progress the study colleges made toward implementing and expanding an MMA system varied, which is reflected in the implementation findings. Costs are averaged over all colleges and represent more startup costs in some sites than in others but present the early stages of implementation in most colleges.
2. Cullinan and Biedzio (2021).

Table 7.1. Average Cost per Study College in 2022, by Personnel Category

Personnel Category	Arkansas Study Colleges[a]		Texas Study Colleges	
	Cost ($)	Percentage of total	Cost ($)	Percentage of total
Administration	6,530	12.1	21,920	22.7
Information technology	1,290	2.4	4,310	4.5
Institutional research	280	0.5	110	0.1
Admissions	180	0.3	5,140	5.3
Registrar	38,980	71.9	4,300	4.5
Testing	60	0.1	14,030	14.5
Faculty	2,990	5.5	11,800	12.2
Advisors	3,680	6.8	33,720	34.9
Other	200	0.4	1,260	1.3
Average total cost per college	54,190		96,590	
Average cost per first-time, degree-seeking enrollee	14		3	

SOURCE: CAPR calculations using MMA scaling data from the 2022 calendar year and 2021 enrollment data from the Integrated Postsecondary Education Data System.

NOTES: Rounding may cause slight discrepancies in sums and differences. All dollar values have been rounded to the nearest $10 amount except per-student costs.

Average first-time degree-seeking enrollment was 3,824 students at Arkansas study colleges that provided cost data and 29,925 students at Texas study colleges.

[a]One Arkansas study college did not provide cost data.

These differences in staff time may reflect the distinct contexts in each state. Different data systems are available to the colleges in each state, along with a corresponding difference in the potential for automation. Triand, which made electronic transcripts available in Arkansas, may have allowed registrars to get the necessary measures directly, while the lack of a universal electronic source of high school transcripts in Texas may have required administrators, advisors, and testing staff members to solicit and interpret that information themselves. This is, to some extent, supported by the implementation findings earlier.

Costs were relatively low for an effort that could affect all entering students. One way to get a rough idea of the number of students who could be placed using MMA is to look at the first-time enrollment of degree-seeking students in the preceding year, most of whom would have gone through the course placement process: 3,824 students enrolled at the Arkansas study colleges that provided cost data, and 29,925 enrolled at the Texas study colleges.[3] The final row of the table shows the average cost divided by the average number of first-time enrollees, giving a rough estimate of the per matriculant cost for expanding and implementing an MMA system in each state

3. One Arkansas study college did not provide cost data.

among the participating study colleges. It is under $20 in both states. Even if only 10 percent of students get a different placement than they would have because of MMA (a hypothetical $200 per student whose placement is changed by MMA), that is still a low cost for a program that affects student placement. Furthermore, these costs were collected when the scaling process was ongoing, or the MMA systems were relatively new at the study colleges. After MMA becomes business as usual, prices are likely to decline further because most of the transitional challenges will likely be resolved. In some cases, MMA may lead to less reliance on placement testing, which could further reduce costs to colleges.

8 Conclusion

A large body of research on the pitfalls of standardized testing and developmental education at large, coupled with disruptions to status quo processes and procedures that were initiated by the COVID-19 pandemic, opened windows of opportunity for colleges in Arkansas and Texas to experiment with alternatives to traditional test-based placement procedures, including the adoption of multiple measures assessment (MMA). This study corroborates research on MMA that suggests that successful adoption depends on state and institutional contexts, specific approaches to—and measures used for—MMA, and collaboration between various implementation actors.

Backing up findings from previous implementation research on MMA, interviewees from the study colleges in Arkansas and Texas said faculty and staff buy-in, the acquisition and automation of alternative measures, and an institutional ability to change were critical to the initial adoption and ongoing success of an MMA system. Although all the study colleges experienced some challenges, the faculty and staff were able to identify strategies and take advantage of opportunities to address and reconcile many of them.

One crucial component of MMA was widely missing from the interviews. While a common motivating factor for the adoption of MMA was the removal of barriers that many marginalized students typically face in accessing college-level courses, equity considerations were not widely discussed by the interviewees and the related goals did not necessarily come to fruition for all colleges. Although many college stakeholders plan to address equity concerns during continuous improvement efforts, they would be well advised to ground their work in these perspectives from the outset. Indeed, research demonstrates that whole-student-body reforms such as MMA cannot reliably eradicate long-standing disparities. To drive more equitable outcomes, colleges must focus their attention on equity-centered policies and practices that are explicitly responsive to the barriers encountered by underserved student subgroups.[1]

For colleges that are considering implementing an MMA placement system, the experiences of the study colleges in Arkansas and Texas present a few takeaways:

- **Broadly, MMA systems were simple and largely similar across institutions.** Though the study colleges implemented MMA on varying timelines, their systems often included similar approaches and components—such as decision bands or rules—and a reliance on measures such as high school GPA, high school coursetaking, and placement tests. These decisions were influenced by research that documented the benefits of adopting simpler models with fewer measures over more complicated systems (such as an algorithm approach). Many institutions reported adopting MMA simultaneously with other college-wide efforts, some of which established committees of faculty and staff members, which aided efforts to implement MMA more efficiently and effectively than might have otherwise been possible.

1. Kopko, Brathwaite, and Raufman (2022).

- **Varying MMA implementation timelines provided an opportunity for late adopters to learn from early adopters.** Colleges in both states began implementation at different times, with some colleges adopting and expanding an MMA system well before others even began experimenting with alternative placement policies. Communication and collaboration between colleges at different stages of the implementation process provided an opportunity for early adopters to impart state-specific insights and considerations that aided later adopters in the design and implementation of MMA.

- **Flexibility among—and communication with—staff members was crucial when beginning MMA adoption.** When making decisions about MMA systems, administrators, faculty members, and advisors were often brought together to plan, review, or approve MMA procedures and features. Leaders of a college system in Texas visited each campus throughout the implementation phase to explain policy updates, answer questions about procedure, and provide faculty and staff members with updates about the positive impact of MMA. Similarly, internal communication helped facilitate collaboration and encouraged flexibility in colleagues from various functional areas and roles—such as admissions and testing, institutional research, and IT—who sometimes had to engage in atypical tasks to launch MMA systems.

- **The dissemination of context-specific data about the predictability and accuracy of MMA generated buy-in among faculty and staff members.** Among study colleges, college- and state-specific data that demonstrated the predictability and accuracy of using alternative measures for placement eased skepticism, kept stakeholders engaged, and fostered buy-in for MMA adoption. Interviewees from several colleges said that this was because the data demonstrated the potential impact of the new placement system on their specific student population and unique campus context.

- **Proactively liaising with high schools and automating aspects of the placement system facilitated the collection and use of alternative measures for placement.** College staff members that reached out to local high schools about changes in placement policy experienced a smoother process of obtaining student transcripts. Some college staff members met with guidance counselors to explain which courses were useful for placement into college-level courses. At colleges that automated some aspects of their placement system—such as consolidating student placement measures and demographic information into one advisor-facing dashboard and auto-importing measures—advisors reported greater efficiency during the placement process. Automation efforts eased the time burden on advisors to access and collect measures needed for placement.

- **Collaboration between departments and the flexibility of faculty and staff members helped colleges implement MMA.** Several interviewees acknowledged that MMA adoption was time-consuming and required adjustments in staffing. However, most colleges were able to adopt MMA procedures without needing to hire additional staff members. This is because colleges that formed cross-functional teams and fostered collaboration between departments were able to adjust to and manage the system change without increasing the number of staff

members. In other cases, supporting existing staff members with innovative approaches like peer coaching also helped to overcome resource constraints and facilitate a smoother transition to an MMA system.

- **Personnel expenses were the predominant cost of MMA implementation, but the staff members involved—and the amount of time they contributed—varied by state.** Data systems and state policy may create conditions that require different staff members to change the processes underlying course placement. In Arkansas, the registrar had the most important role in the process, with the greatest time commitment to MMA implementation. In Texas, the bulk of the work was carried out by advisors and administrators. In both states, costs were relatively low, especially when one considers the large number of students going through the placement systems. Given the positive evidence base for MMA from previous studies, these costs are likely justified by improved student outcomes.

As more states adopt MMA systems, and other developmental education reforms (such as corequisite remediation) gain popularity, new research questions about how to best implement placement systems arise. When developmental prerequisites are no longer required—but targeting students for additional support is still necessary—MMA can play an important role. But how should its design differ when that is the case? The Center for the Analysis of Postsecondary Readiness is launching a new project, a multicollege randomized controlled trial that answers one of the questions: What is the effect of MMA systems on student outcomes in a corequisite context? This research study will provide high-quality estimates of the effect an MMA system has on college students' academic outcomes as well as findings about the implementation of MMA and corequisites and the associated costs. This report's findings will inform implementation for the study colleges and others seeking guidance nationally.

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