



TOWARD BETTER COLLEGE COURSE PLACEMENT

A Guide to
Launching a
Multiple Measures
Assessment
System

Dan Cullinan
Elisabeth Barnett
Alyssa Ratledge
Rashida Welbeck
Clive Belfield
Andrea Lopez

JULY 2018

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BUILDING KNOWLEDGE
TO IMPROVE SOCIAL POLICY
■

CCRC COMMUNITY COLLEGE
RESEARCH CENTER

TEACHERS COLLEGE, COLUMBIA UNIVERSITY

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OVERVIEW

Most students seeking to enroll in community college are required to take a placement test for math and English courses. Among those students, 60 percent are directed into at least one developmental (remedial) education course. Community colleges have often relied solely on a traditional placement test, such as College Board's ACCUPLACER, but recent evidence suggests that this approach misplaces substantial numbers of students. While some students are misdirected into college-level courses they are not ready for, research indicates that up to one-third of those placed into developmental education could be successful in college-level courses. These underplaced students are investing time and money on courses that do not contribute to their degree plans, which may discourage them from continuing their education.

Administrators are well aware of the shortcomings of using traditional placement tests alone, and state and college systems across the country are organizing multiple measures assessment (MMA) placement systems that will potentially provide more accurate results. MMA systems use alternative measures alongside the traditional tests to create a final placement. Among available measures, there is strong empirical evidence that high school grade point average (GPA) is one of the best predictors of college success. While the evidence is less strong for noncognitive assessments — measures of characteristics such as motivation and problem-solving skills — some research shows that they too can be predictive of success in college courses.

During fall 2016, MDRC, in partnership with the Community College Research Center (CCRC), launched the Multiple Measures Assessment Project, funded by Great Lakes Higher Education Corporation, and assisted ten Minnesota and Wisconsin colleges with the design and piloting of MMA placement systems. In the pilot in summer 2017, students who were identified as needing developmental education based on test scores could be “bumped up” to a college-level course based on measures such as high school performance (primarily GPA) or a noncognitive assessment.

This guide is a result of that project. While recent evidence shows that implementing an MMA system is a promising strategy to mitigate the issue of underplacement, practitioners may be hesitant to change their current practices, skeptical about the measures used, or unsure where to start. The information in this guide addresses these concerns, explores examples and lessons learned from the first phase of the project, and provides recommendations for how to approach each step of the process. Beginning with the rationale behind changing assessment practices, the guidance outlines what an MMA system is, what it takes to get started, the personnel involved, and the costs that may be incurred in the design and planning processes. States and college administrators alike will find tools for understanding the scope of work involved in setting up a new system that addresses the placement needs of their students and that aims to provide students with a better chance to succeed.

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PREFACE

Students seeking the academic and technical skills required in the current labor market often rely on community colleges. But these institutions bear the additional responsibility of preparing many of their students — some of whom have been out of school for years — for college-level course work, typically by placing them in developmental courses that carry no college credit. More than half the community college students who place into developmental education do not make it to graduation. Yet recent research suggests that many of these students may, in fact, be able to complete courses at the college level. Educators are asking whether the traditional reliance on a single placement test is poorly serving these students.

To evaluate the predictive validity of single placement tests compared with “multiple measures” — the use of high school grade point average, psychological assessments, or other measures — MDRC has teamed up with the Community College Research Center (CCRC), which carried out the foundational research in this area. MDRC and CCRC visited the Great Lakes region from 2015 to 2016 to better understand colleges’ interest in using multiple measures for placement; subsequently, the study team launched the first phase of the Multiple Measures Assessment Project in ten colleges in Minnesota and Wisconsin in fall 2016.

For institutions interested in developing, implementing, or testing a multiple measures system, this guide presents critical information, questions, and lessons gleaned from those efforts: on gauging institutional readiness, on the importance of involving the faculty in placement criteria decisions, on integrating the new measures into school systems, and on the adviser-student conversation about placement results, among other considerations.

The next phase of the project consists of a large randomized controlled trial of multiple measures assessment in five of the pilot colleges. In addition, MDRC and CCRC researchers, under the federally funded Center for the Analysis of Postsecondary Readiness, are currently evaluating multiple measures for placement at seven colleges in the State University of New York system. In combination, the findings from these projects will contribute causal evidence of the effects of using multiple measures placement on students’ completion of college courses.

It is important to ensure that prospective students are afforded the best opportunity to succeed in their course work and earn a degree. Improving placement testing by integrating a multiple measures approach seeks to place students at a level at which they can succeed without diverting them into unnecessary courses that delay or even derail their progress.

Gordon L. Berlin
President, MDRC

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This project began as a fact-finding mission in 2016 and morphed into something so much more. The authors are thankful to the many administrators and faculty and staff members who helped pilot new ways of placing students at the ten participating colleges: Anoka Ramsey Community College, Century College, Fox Valley Technical College, Lakeshore Technical College, Madison College, Minneapolis Community and Technical College, Moraine Park Technical College, Normandale Community College, North Hennepin Community College, and Northeast Wisconsin Technical College. We would also like to thank the Minnesota State and Wisconsin Technical College Systems for their cooperation and participation in this project. Thanks to Amy Kerwin and Sue Cui at Great Lakes Higher Education Corporation and Affiliates for their ideas and insight throughout the life of this project, and to Great Lakes for its generous financial support of this project.

We would like to thank current and recent members of the Multiple Measures Assessment team from MDRC and the Community College Research Center, including Elizabeth Zachry Rutschow, Devon Stein, Madeline Trimble, and Andrew Avitabile. Thanks also to our senior advisers and reviewers — Thomas Bailey, Rob Ivry, Alexander Mayer, and Jennie Kaufman — for their careful reading and thoughtful feedback during the review process. We thank Jennie Kaufman for editing this report and Carolyn Thomas for preparing it for publication.

The Authors

INTRODUCTION

Most community colleges admit all students who apply for admission — however, the vast majority then require students to demonstrate specified levels of literacy and numeracy before they can take college-level courses.¹ Typically, students have been assessed using a single placement test, such as the College Board’s ACCUPLACER. Colleges, or sometimes states, choose “cut scores” on the assessment. Students who score below the cut score are not considered to be “college ready” in the relevant subject area and are referred to remediation, also known as developmental education. Research has shown that this method misplaces many students into developmental courses when they could be successful in a college-level course in the subject (underplacing) or places students in college-level courses who would have had a better chance of success if they had taken developmental courses (overplacing).² Thus some students must spend time and money on courses that they do not need, and others fail a course for which they were not prepared. As a result, colleges are seeking more reliable ways of assessing student readiness for college courses.

One approach is to use additional indicators of student preparation, such as high school records, noncognitive assessments that examine behaviors and attitudes, specific assessments of writing or computer skills, or other test results. Combinations of such options are referred to as multiple measures assessment (MMA) placement strategies. This guide will discuss how to begin the process of creating them within college systems. The information presented here is primarily informed by the Great Lakes Multiple Measures Assessment Project, a research project conducted from 2016 to 2018 by two organizations — MDRC and the Community College Research Center (CCRC) of Teachers College, Columbia University — with funding from Great Lakes Higher Education Corporation. Technical assistance and implementation work done by the same organizations under the Institute of Education Sciences-funded Center for Analysis of Postsecondary Readiness (CAPR) also informed this work. (Box 1 provides a summary of the project and a related project under way from CAPR.)

About This Guide

In an effort to mitigate underplacement, the Great Lakes Multiple Measures Assessment Project helped ten colleges in Minnesota and Wisconsin to build multiple measures placement systems.³ Students identified as needing developmental education based on test scores could be “bumped up” to a college-level course based on information such as high school grade point average (GPA) or

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1. Bailey, Jaggars, and Jenkins (2015).
 2. In one community college system study, Scott-Clayton, Crosta, and Belfield (2014) found that many students may be misplaced. Using the richest set of predictors available, the study calculated a “severe error rate” of students being misplaced, ranging from 24 percent in math to 33 percent in English. In particular, underplacement was a problem, accounting for the majority of the error rate. That study also found that high school grade point average (GPA) was more predictive of outcomes for the first college-level English and math courses than were placement test scores. A combination of placement test scores and high school achievement measures yielded the greatest explanation of variance. Belfield and Crosta (2012) had similar findings at another community college system.
 3. Five colleges were in Minnesota; the other five were part of the Wisconsin Technical College System. A list of participating colleges and their enrollment, retention, and graduation rates can be found in Appendix A.

BOX 1

The Great Lakes Multiple Measures Assessment Project and the CAPR Assessment Project

Researchers from MDRC and the Community College Research Center (CCRC) of Teachers College, Columbia University, are undertaking two random assignment studies to provide insight into whether changes in placement have an impact on student outcomes.

This brief discusses lessons learned from the Great Lakes Multiple Measures Assessment Project, which MDRC and CCRC are conducting with funding from Great Lakes Higher Education Corporation. Phase I of the project, which began in 2016, consisted of a pilot at ten colleges in Minnesota and Wisconsin. In Phase II, five of the pilot colleges are participating in a large-scale randomized controlled trial to learn the impacts of MMA on student success in college-level courses. In 2019, MDRC and CCRC will share findings on the colleges' experiences, as well as early impact findings on course placements and pass rates for the first cohort of students, who entered the study during their first semester at the Phase II colleges. Final impact findings will be published in 2021.

In the second project, MDRC and CCRC researchers with the Center for Postsecondary Readiness (CAPR) are conducting a randomized controlled trial of an algorithm placement system at seven colleges of the State University of New York (SUNY). An upcoming report will present early findings on the first-semester impacts on placement and completion of college-level courses among the first cohort of students randomly assigned to MMA algorithms at five of the colleges. Final impacts in the CAPR assessment study will be available in 2020.

the results of a noncognitive assessment. To support this work, MDRC and CCRC offered technical assistance and conducted implementation research.⁴

This guide, based on lessons learned from a pilot of these new systems, is designed for states and postsecondary institutions that are considering, developing, or implementing an MMA placement system. Following a discussion of the evidence for MMA and an outline of specific options, guidance is organized along the following lines:

- How do we decide whether our institution is ready for MMA?
- How should we organize the work?
- How do we choose placement criteria?

4. Specific technical assistance activities for the Minnesota and Wisconsin colleges included an initial convening of the colleges to begin planning for the development of an MMA system; assistance with selecting the most appropriate measures and placement strategy at each of the colleges; advice on implementation of the new MMA systems at each of the colleges; and a review of piloting procedures and results using the new MMA system for a small subset of traditional and nontraditional students.

- How do we design the logistical aspects of the MMA system?
- How can we make sure that the system works as intended?
- What are the initial costs of MMA design and planning?

Why Change Assessment Practices?

Large numbers of students enter college only to learn that they must begin their postsecondary experience in developmental (remedial) courses for which they earn no college credit. Some students are placed into a sequence of developmental courses in each subject. Nationally, about 60 percent of incoming freshman are judged, by prevailing assessment systems, to require developmental instruction in English, reading, math, or all three; the vast majority of these students are concentrated at nonselective two-year or less selective four-year colleges.⁵

Educators need accurate information about students' strengths and weaknesses to best position them for success. Developmental courses may be effective for some students, but they come at a cost. While financial aid such as federal grants or loans can be used to pay for developmental course work, developmental credits do not count toward degree requirements. Students who can be successful in college-level courses should not be required to spend time and money in courses that they do not need. In addition to the problem of unnecessary expense, being labeled "not college ready" may further discourage students who already doubt their academic ability. This may explain why many students fail to show up for their assigned developmental courses after being assessed.⁶

Does Multiple Measures Assessment Work?

Emerging research suggests that the use of MMA can have a positive effect on student outcomes. While no rigorous experimental studies are complete, evidence from a pilot and early results from a randomized controlled trial are promising.

Long Beach City College (LBCC) in California piloted an assessment method based on information from high school English and math grades, GPA, and state exit exam scores. LBCC's internal evaluation found that students in the pilot were more likely to complete transfer-level math and English in the first term than fellow LBCC students who did not participate in the pilot.⁷ Other California colleges are currently in the process of replicating aspects of the Long Beach model. While these results are promising, the effects were estimated from an analysis in which students who self-selected into the program are matched with similar students who attended LBCC before the pilot, leaving some possibility of selection bias affecting the magnitude of the effects.

A random assignment study is currently being conducted by CCRC and MDRC under CAPR at seven State University of New York colleges (Box 1). The researchers worked with the colleges to develop

5. National Center for Public Policy and Higher Education and Southern Regional Education Board (2010).

6. Steele and Aaronson (1995).

7. Long Beach City College, Office of Institutional Effectiveness (2013).

algorithms based on historical data to predict students' probability of success in college-level courses. Early findings show that students who were placed using these algorithms were more likely to place into college-level English and math and more likely to enroll in — and pass — college-level English and math courses in their first semester, compared with the business-as-usual group.⁸ While longer follow-up is needed to understand how students placed with traditional methods will fare after taking the developmental education sequence, these positive impacts are a promising start for students placed with multiple measures.

Five of the ten colleges participating in the pilot of the Great Lakes Multiple Measures Assessment Project are moving forward with a large-scale randomized controlled trial that began in spring 2018. This second phase of research will provide additional evidence on the effects of MMA placement systems on student outcomes.

MMA Placement Strategies

Key decisions must be made during the design of MMA systems on (1) what measures to use and (2) how to combine the various measures to arrive at a placement decision for each student.

Commonly Used Alternative Measures

Colleges have many choices of measures and typically select them based on their predictive validity, availability, ease of use, and cost, factors discussed in greater detail below. The primary options used by colleges — traditional placement tests, other assessments and questionnaires, high school transcript information, and standardized test results — are listed in Box 2.⁹ There is strong empirical evidence that high school GPA is one of the best available predictors of college success.¹⁰ One advantage of high school GPA is that it is an aggregate measure of performance over multiple years, unlike a one-time assessment. It reflects not only content knowledge, but also behaviors, such as attendance and participation, that influence success in college. Previous course work from high school or college transcripts may also have some value in placement decisions. While course work has not been found to be as predictive as high school GPA, it can be used in combination with GPA to address concerns about subject-specific knowledge.

Noncognitive assessments, such as the Learning and Study Strategies Inventory (LASSI), ACT Engage, and the Grit Scale (Box 2), have the potential to take into account some of the other factors that influence college success, such as motivation and problem-solving skills. While the evidence is less strong than the evidence for high school GPA, there is research showing that some noncognitive assessments are predictive of success in college courses.¹¹

Placement System Options

Once the measures have been selected, the resulting information must be integrated in some way to yield a placement for each student in each subject area. Figure 1 shows three examples of placement

8. Barnett, Bergman, Reddy, and Roy (forthcoming).

9. Barnett and Reddy (2017).

10. Belfield and Crosta (2012); Scott-Clayton, Crosta, and Belfield (2014).

11. Appendix C provides a list of references on noncognitive assessments.

BOX 2

Primary Options for Assessment Measures

MEASURES ADMINISTERED BY THE COLLEGE

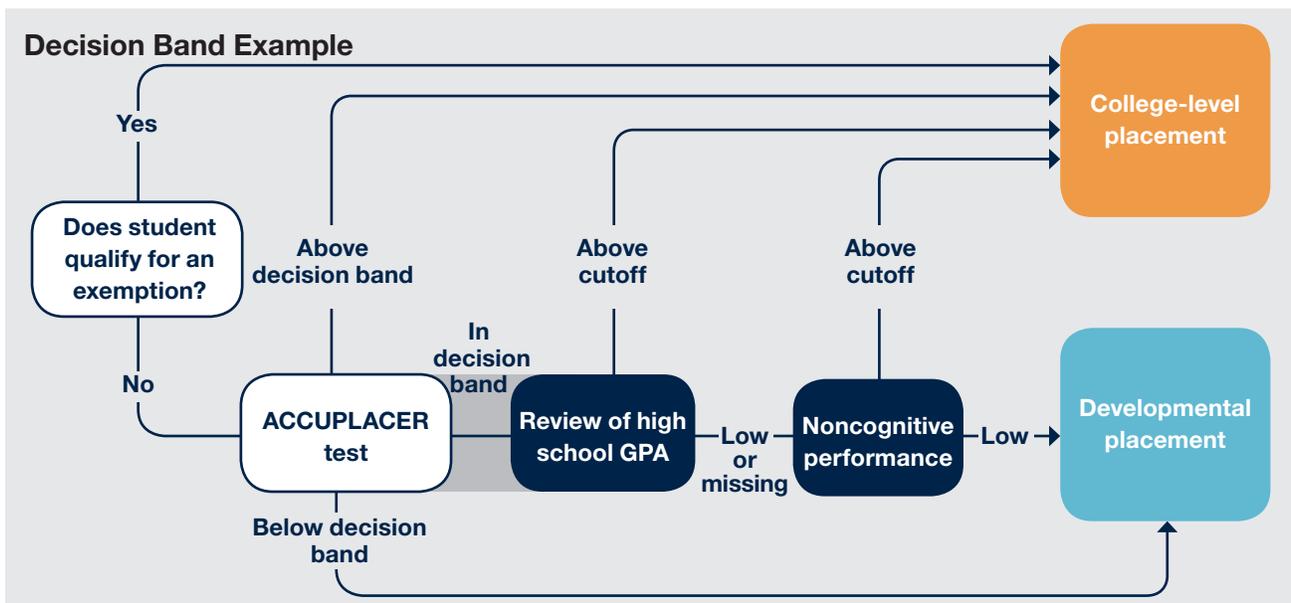
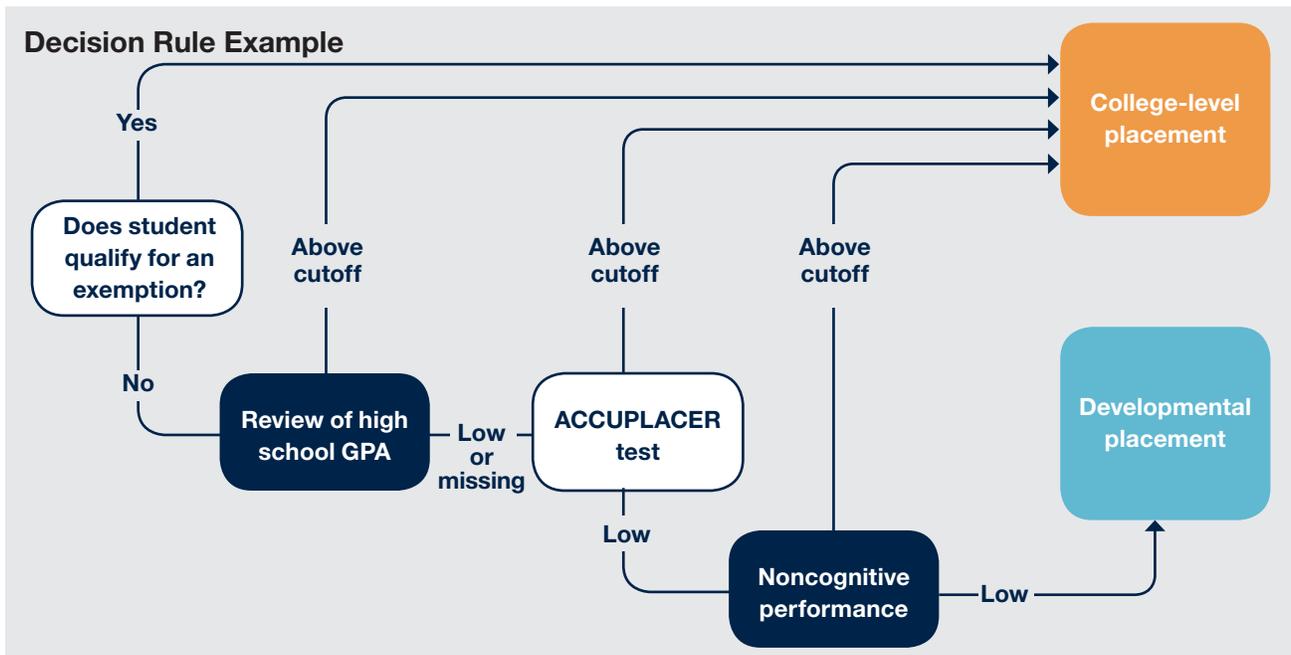
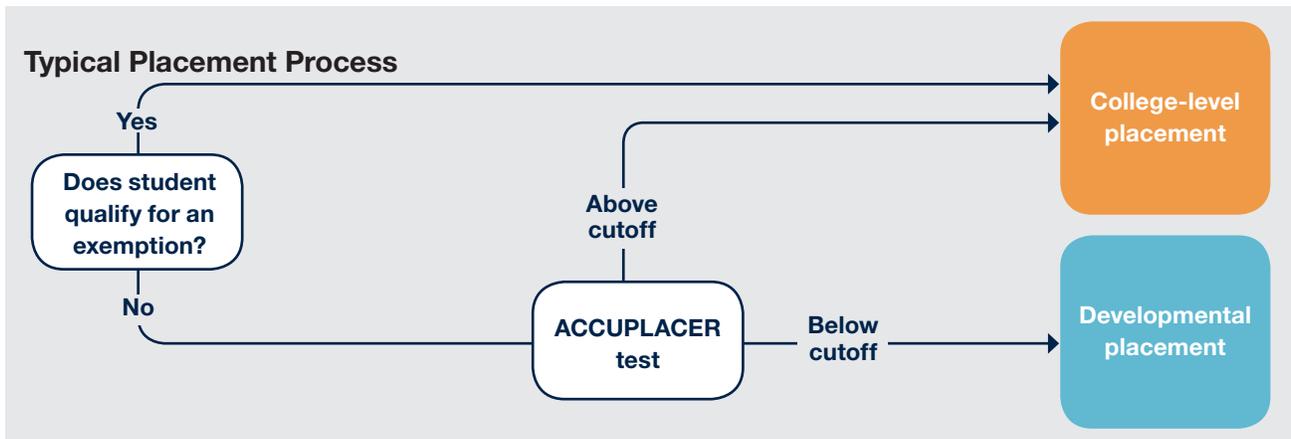
1. **Traditional placement tests** (such as ACCUPLACER) measure students' math, reading, and writing skills.
2. **Noncognitive assessments** measure attitudes and behaviors that have been found to be relevant to college success. Commonly used assessments are the [Learning and Study Strategies Inventory](#) (LASSI), which has ten scales to measure components of a student's approach to learning; [ACT Engage](#), developed by the ACT assessment organization to measure such qualities as motivation, social engagement, and self-regulation; and the [Grit Scale](#), which focuses on perseverance and consistency of interests.
3. **Writing assessments**
4. **Computer skills assessments**
5. **Questionnaires** (may include self-reported high school transcripts)

MEASURES OBTAINED FROM OUTSIDE THE COLLEGE

1. **High school grade point average** (GPA)
2. **Other high school transcript information** (courses taken, course grades, class rank, years since graduation)
3. **Standardized test results** (for example, ACT, SAT, Smarter Balanced, or PARCC assessments). In addition to the ACT and SAT college admissions tests, colleges may use scores from other tests administered by high schools: for example, systems such as Smarter Balanced and PARCC (Partnership for Assessment of Readiness for College and Careers), which some states have adopted to meet federal accountability requirements.

systems. The top diagram represents what happens at most colleges that do not use MMA: Some students are exempt from the placement process on the basis of standardized test scores or previous course work. Students without exemptions take a traditional placement test such as ACCUPLACER. The middle diagram shows an example of a decision rule system, which takes into account multiple measures (high school GPA and a noncognitive assessment) as well as the placement test; a system may use different measures from those shown in the example or use those measures in a different order. Finally, the bottom diagram shows an example of a decision band system. Students with placement test scores above or below the band are placed as they would have been in a traditional placement system. Those whose tests fall within the band have their other measures considered. As with the decision rule example, the measures used and their order may vary.

FIGURE 1 Examples of Placement Systems



While not shown in Figure 1, an algorithm approach would look similar in a simplified diagram to a typical placement process, but the multiple measures algorithm, rather than the ACCUPLACER score, would generate the placement decision. Such models may be somewhat more precise than the decision rules shown here, but considerable historical data preparation and analysis is necessary to develop an algorithm, and implementation is considerably more complicated than it is for decision rules.

Whatever method is used, many colleges treat the result as guidance rather than a final placement and allow students to make their own decisions about what courses to enroll in based on the information (known as directed student self-placement). Box 3 summarizes the placement system options.

BOX 3

Placement System Elements and Options

EXEMPTIONS OR WAIVERS: Students are placed directly into college-level courses without the need for placement testing if their scores on specified tests or other measures exceed a certain threshold.

DECISION RULES: As shown in the middle panel of Figure 1, a sequence of rules compares each selected measure to a threshold in a predetermined order. If the threshold is met, a placement is generated; if not, another rule is applied.

DECISION BANDS: As shown in the bottom panel of Figure 1, decision rules apply only to students who fall within a certain range on a specified indicator (such as high school grade point average or a placement test score), usually just below the cutoff.

PLACEMENT FORMULA (ALGORITHM): An algorithm applies a weight for each of various factors based on an analysis of historical data to calculate the probability of success in college courses and generate a recommended placement.

DIRECTED SELF-PLACEMENT can be used in conjunction with any of the above methods, or on its own. When this is used with another method, the student is told of the generated placement but given the option to enroll in either developmental or college-level courses. In a system where no definitive placement is given, the student has a conversation with the adviser or counselor about test results, prior courses, and grades, and selects preferred courses.

CONSIDERING MMA, STEP BY STEP

How Do We Decide Whether Our Institution Is Ready for MMA?

Whether a college should adopt MMA depends on state or system policies; the views of the faculty, the staff, and college leaders; and logistical factors. For example, do current mandates conflict with MMA, or leave little to be gained? Do faculty members recognize a need for improvement in the placement process? Can new measures be easily obtained and integrated into the school's data system?

Background

The research conducted in Minnesota and Wisconsin indicated that colleges vary in their readiness to adopt a reform such as an MMA placement strategy. Some differences involved institutional readiness to adopt reforms in general; others involved conditions favorable or less favorable to initiating MMA specifically.

For the most part, however, conditions were supportive for MMA implementation, and many colleges were engaged in discussions about how MMA would fit with other efforts to improve student outcomes. As one Minnesota college administrator stated, "In multiple measures, it's part of the larger context of how do we think in a more nuanced way about bringing students into the college and making sure they're set up to be successful in the programs of study."

Across the board, college leaders were committed to doing this work. In some cases, they had concluded that it was the right thing to do; in others, they were influenced by national trends toward increased use of MMA. Leadership commitment was extensive in Minnesota, where the state required MMA placement systems to be set up within a few years.

Many of the colleges had multiple reforms under way; for most of them, simultaneous changes appeared to be a normal way of doing business. Some colleges had existing structures in place (task forces or committees), which facilitated the process. In these settings, it was easier to make decisions and move toward development of an MMA system than it was where those structures were not in place.

The biggest obstacle to MMA implementation noted by interviewees was access to students' high school transcripts. While some colleges asked students to submit transcripts at the time of application, this practice was not universal, and some colleges that did require transcripts had no automated process to pull the information into their data systems. Some colleges were reluctant to require students to submit transcripts, considering it to be a barrier to entry. This may be a concern particularly in the case of adult students applying to college many years after graduating from high school. Other obstacles to implementation of MMA included faculty concerns about the prospect of providing too little developmental education to those who need it, or about the alternative measures themselves; uncertainty about technological readiness; and college systems that were already stretched thin due to staff changes or other commitments.

Recommendations

Administrators should review pertinent state and college policy before beginning the MMA development process. Legislation may require the use of specific placement measures, establish exemptions from developmental education, and set reform timelines.¹² Developmental education reforms under way at the state or college level, such as the use of corequisite courses, may need to be factored into MMA placement rules. Corequisite models of remediation may already place large numbers of students into college-level courses; if so, MMA would not necessarily increase the number of students in college-level courses so much as it would reduce the number in developmental corequisites.

After taking stock of the current state of developmental education initiatives, colleges can gauge institutional readiness. Because many people, both faculty and staff members, are involved in building a successful MMA system, project leaders should assess staff views about current placement methods, their commitment to changing them, and the college's technical capacity to do so. Project leaders may want to consult the criteria below, which are specific to the use of a new assessment system, and which emerged from MDRC and CCRC work on this project and other MMA research.¹³ These conditions are identified as contributing to a smoother implementation process:

- There is a consensus that placement tests alone are not good predictors of student success in college.
- The faculty is committed to making sure that the right students are placed into developmental education.
- The college leadership supports the use of a more effective assessment process.
- The college has reviewed and discussed the research on the use of MMA.
- The college has access to incoming students' high school records.
- The institution has a strong information technology (IT) capability.

How Should We Organize the Work?

Once the decision has been made to embark on developing a new MMA system, leaders must assign responsibility for different aspects of the work. While drawing on the institutional practices that have worked in the past, colleges should weigh various factors: How much autonomy does the institution have? Is a large committee needed to balance the workload, or would a small one be more efficient? What is the best way to keep campus divisions informed and involved?

Background

College systems vary by state. Minnesota colleges in the pilot were following a state-mandated developmental education reform plan, whereas the Wisconsin Technical College System is less centralized. Interviews and observations conducted at Minnesota colleges found that, while there was an organizational structure at each college responsible for working on the MMA initiative, there was

12. Appendix A provides a summary of the state policy context for the colleges in the pilot.

13. For example, Barnett, Bergman, Reddy, and Roy (forthcoming).

also considerable communication between colleges and the college system office as they collaborated to create a statewide MMA system. In Wisconsin, most of the work related to the development of MMA systems was done at the college level, although there were some opportunities for mutual learning at statewide and regional events.

All the colleges involved in the project set up committees to advance the work. In some cases, the committees were fairly large, inclusive, and organized. For instance, one college formed a core team of 12 to 15 staff members, ensuring that all areas of the college affected by the new placement system were represented. The committee had a “sponsor,” the college president, and a “charge,” which delineated their responsibilities to the college. In addition to their deep engagement in project planning and oversight, representatives would make sure that their respective departments were informed of project updates via in-person meetings and frequent email communication. In other colleges, the core committee working on the project consisted of one or two people, who did most of the work but brought in others as necessary to weigh in on certain decisions or perform specific tasks. In these settings, the belief was that it was easier to have a small, nimble group rather than a large group with complex schedules and other responsibilities.

In most cases, project leaders had spent time talking about the new assessment system and the pilot with people throughout the college community. Some also had discussions with people in the K-12 educational system, especially in cases where there were large high school-college dual enrollment programs that used placement testing. Many colleges scheduled meetings with a range of stakeholders before the pilot, often to address concerns associated with a change in assessment criteria. As one project leader stated, “There were many, many steps because we had to get a lot of people to buy into this. . . . it’s really the program’s deans and associate deans . . . that were probably, initially, the most concerned about this project.”

Recommendations

The assignment of responsibilities generally involves establishing a committee, clarifying which college leaders will provide oversight, and making sure that lines of communication are open with those who will be affected by the change — which includes almost all divisions on campus. It is recommended that colleges use approaches that have worked for them in past college-wide reforms.

Faculty participation and early endorsement of the process is essential for MMA to be implemented in a sustainable way. All departments touched by MMA should be involved in discussions and planning from the start, but it is essential that faculty be included at the earliest stages. Because faculty members are most familiar with their course content and have insights into which students are likely to pass, they may not be comfortable with placement criteria that they did not contribute to. Faculty members must provide input on what measures are to be used and how the decision rules are to be defined. It is also important to educate the faculty about what MMA is and what advantages and potential challenges are to be expected. These may not always match preconceived ideas about MMA.

Colleges may underestimate the number of staff members affected by the new MMA system. As discussed in the section on logistics, several departments — recruiting, admissions, advising/counseling, testing, information technology (IT), institutional research, the registrar, and the faculty — need opportunities to learn about the proposed system and provide their point of view.

How Should We Choose the Placement Criteria?

Historical data, if available, can guide decisions about placement criteria; otherwise, the literature on high school GPA and noncognitive assessments provides a basis for decisions — which should be informed by recommendations from faculty and staff members. Which measures are most predictive, and which can be obtained? How should the sequence of assessments be structured? Which cut scores are most likely to promote student success?

Background

Colleges in Minnesota and Wisconsin all incorporated high school GPAs and noncognitive assessments, along with ACCUPLACER results, into their MMA systems. Other measures, such as specific courses taken in high school, were considered but not added during the pilot project. In addition, they all used decision rule or decision band approaches to integrate the different measures. Colleges agreed that additional measures could only be used to “bump up” students: In a system where students took the ACCUPLACER test first, measures such as GPA or a noncognitive assessment could be used to raise them a level, but not to place them lower.

Among the challenges in choosing placement criteria were internal disagreements on which measures to use. Some colleges and individuals had little faith in high school GPA, especially for older students, while other colleges had more confidence in its ability to predict college achievement. High school GPA seemed to be of particular concern among faculty members because of perceived grade inflation in local high schools. Other faculty members questioned the rigor of the high school courses students typically took, particularly in math. In many cases, people became more comfortable as they learned more about the considerable amount of research that has been done on the value of the high school GPA in particular.¹⁴

Similarly, opinions differed on the use of noncognitive assessments. Some staff members thought they would allow for the inclusion of additional, important dimensions in the placement decisions, while others were somewhat skeptical. Furthermore, some colleges questioned the accuracy of noncognitive tests if students completed them outside the testing center or if students intentionally selected answers they thought would provide desirable results. One college representative noted, “We don’t want people to go into the ACT Engage thinking, I should answer this way because I want to move up. We want them to be honest taking it.”

During the planning process, colleges created flow charts to help them visualize their decision rules and the order in which the rules would be used. Colleges shared their flow charts with each other and discussed ways to address state-specific issues, then made further changes individually to reflect local conditions and preferences. College representatives were emphatic that peer learning had helped them make good choices.

The placement approaches taken by each of the participating colleges are presented in Appendix B. Key differences included cutoffs for high school GPA and test scores in each subject, the choice of noncognitive assessment, and the order in which different measures were considered. It should

14. For example, Hetts (2016).

be noted that these were preliminary decisions made for use in the pilot phase of this project, and some were later adjusted.

Recommendations

College institutional research departments should begin by looking for any historical student data on the measures being considered. Did students with a high school GPA above a certain threshold perform better than others? A good starting place for these analyses of high school GPA is the grade deemed acceptable in college-level courses. For example, the data may indicate that nearly all students who earned a C or better in a college-level course received at least a C+ average in high school.

In the absence of school data, prior research can be a guide. Decision rules used in California and North Carolina have consistently set high school GPA cutoffs in the 2.5 to 3.0 range, based on extensive research.¹⁵ (In those states, when students enroll in college directly from high school, eleventh-grade GPA is used if twelfth-grade GPA is not yet available.) While the most accurate source is the high school transcript, there is evidence that students self-reported high school GPA reliably in California data.¹⁶

For measures with less data or research backing them up, the college may want to begin collecting data on a trial basis to learn more about how they correlate with student outcomes. Both the predictive value of the measure and the feasibility of obtaining the data will need to be taken into account, as well as logistical considerations such as cost and time required for testing. Selected faculty and staff members should have a chance to weigh in.

When choosing a noncognitive assessment, there are several questions of fit and logistics to consider. Box 4 enumerates some criteria used by colleges in the pilot project, with guidance from CCRC and MDRC. It may make sense to use the results of subscales related to particular characteristics rather than the full instrument. For example, on the Learning and Study Strategies Inventory (LASSI), an instrument used by several of the colleges in Minnesota, scores on the motivation scale were correlated with student success, so that subscale was selected for inclusion in the MMA placement strategy at a number of colleges. In the absence of historical data, information may be available from assessment developers about which scales indicate college readiness. Students who fall just short of college readiness by traditional tests — or who are missing other measures — who score high on these scales may be good candidates for bumping up to college level. Once assessments are administered, the institutional research department can begin to accumulate data on how student outcomes correlate with the subscales.

Once measures are selected, colleges will need to determine their order in the placement structure and the cut scores for each measure. The following steps may help determine how to combine the measures:

- Create a diagram of the college's current system of placement for each subject, including all exemptions or waivers, as in the top panel of Figure 1.

15. MMAP Research Team (2017); North Carolina State Board of Community Colleges (2014).

16. Sanchez and Buddin (2016).

BOX 4

Noncognitive Assessment Considerations

Several criteria should be considered when selecting a noncognitive assessment:

1. **FACE VALIDITY** (fit with college priorities, faculty judgment on the importance of the measured domains, expected usefulness of results)
2. **PREDICTIVE VALIDITY** (in relation to college success and completion of college-level English and math courses)
3. **COST** (both initial and ongoing)
4. **TIME REQUIRED** (for both staff members and students to spend on the assessment and follow-up activities)
5. **FIT WITH COLLEGE SYSTEMS** (existing policies and procedures related to admissions, testing, counseling, registration, and IT)
6. **SPECIAL CONSIDERATIONS** (population served, goals of the placement process, college context and history, existing course sequences)

- Create a diagram incorporating the new measures, showing the order in which the measures will be considered and the decision rules that will apply (see Figure 1 for options).
- Take time to consider, with faculty members, the cut scores that are most likely to increase student success. Think further about how the cutoffs used may change the number of students in each course.
- Repeat the process as necessary to cover all programs at the college and their prerequisites.
- Review the new rules with key players on campus and make adjustments as needed.

How Do We Manage the Logistical Aspects of the MMA System?

Adoption of an MMA placement system means acquiring data, administering tests, and integrating the results into the current data system, as well as considerations of how the changes will affect students, faculty members, and advisers. Recommendations address the roles of admissions, registrar, testing, and IT staff, and advisers, faculty, and administrators.

Background

The ten colleges in Minnesota and Wisconsin piloted their approaches to MMA in the spring and summer of 2017. The goal of the pilot was to test each level of the new placement process, consider ways to automate the system, and determine the extent to which the approach would actually change student placements. Here are a few of the lessons learned:

Colleges need a process not only for obtaining high school GPA but also for integrating it into the system. Three of the colleges had routinely obtained high school transcripts for students admitted to the college. At another college, large numbers of students had taken dual enrollment courses while in high school, which gave the college access to their high school records. Other colleges did not have a process in place for obtaining transcripts before the pilot. Even when transcripts were received, however, the data were not routinely entered into the college's data system in a form that would allow them to be used for placement. As a result, a number of colleges were considering whether to allow students to self-report their high school GPAs rather than requiring transcripts upon entry. Those not requiring submission of a transcript were often concerned about adding barriers to admission.

Coordinating the testing can be tricky. Most students placed using MMA were required to take either the placement test (ACCUPLACER) alone or both the ACCUPLACER test and a noncognitive assessment. Among the colleges that elected to use the Grit Scale as their noncognitive assessment, the process was relatively easy, as the 8 to 12 items in the scale could be included within ACCUPLACER itself. For the colleges that used ACT Engage or LASSI, the testing center had to figure out a way to sequence the two tests and assist students as they finished one and began the other. Alternatively, students were sent a link to one of these assessments and asked to take it before coming in for testing; however, many students did not do so and had to be given the test upon arrival at the college. Neither system was ideal, and during and after the pilot, college staff members continued to discuss better ways to administer these assessments.

Advisers must be prepared to communicate placement results to students. Staff members at a number of the colleges were concerned that the student advising process would become more complicated with the new assessment and placement system, for several reasons. Rather than reporting individual test scores, advisers would need to explain the multilayered rationale for the placement students received. In addition, several colleges allowed considerable latitude to advisers and/or students to determine which placement option to accept. Colleges had to decide whether that latitude would continue in the new system.

The process involves demands on a variety of staff members. Through the piloting process it was clear that each affected department or group within the colleges faced its own challenges in setting up the MMA placement strategy. Box 5 presents some important issues likely to arise for offices of admissions, testing, IT, institutional research, and the registrar, as well as the faculty.

Recommendations

Once the system is designed and mapped, there is still considerable work left to do to develop a logistical flow that will meet the needs of students as well as those of the college staff and systems.

The admissions staff, the testing staff, and the registrar should plan to address the following tasks:

- Determine how to obtain high school information. Options include getting transcripts from students or their high schools or allowing students to self-report. Efforts to obtain transcripts smoothly and quickly can benefit from good communication with counseling offices at the main feeder high schools. In some cases, high schools automatically send the transcripts of all students who express interest in attending the college. Determine how to upload them into the testing

BOX 5

Potential Challenges of MMA for Divisions Involved with New Student Enrollment

Admissions or Registrar

- Adjusting to increased data entry demands
- Obtaining high school transcripts before students enroll
- Timing the entry of high school data into the system before placement
- Communicating new requirements without discouraging student enrollment in the college

Testing

- Building a new set of rules to incorporate multiple measures, in concert with IT
- Providing students with information about the revised assessment procedures and results
- Managing the administration of both ACCUPLACER and a noncognitive assessment
- Importing new information into the college's data system

Information Technology (IT) or Registrar

- Creating new fields in the management information system
- Incorporating different kinds of measures into a data system and applying placement rules without requiring additional staff time
- Adapting registration blocks or prerequisites to reference the revised placement results instead of raw test scores

Institutional Research

- Providing analyses to inform the development and test the efficacy of MMA systems

Advising/Counseling

- Understanding and becoming comfortable with the new assessment system, compared with test scores that appear to have a more definitive result
- Preparing ways to communicate results to students; depending on the method used, placement results may not be as transparent as test scores

Faculty

- Resolving concerns about changing standards for college-level enrollment
- Rethinking the meaning of college-ready: not only those most likely to succeed, but also those more likely to succeed by enrolling in college-level courses than by taking developmental courses first

system or management information system (MIS). Will they be entered manually, or be uploaded as a file? Who is responsible for each step?

- Communicate with incoming students and high school counselors about any new requirements or policies, such as the use of exemptions or waivers, testing requirements, the need to prepare for tests, and so on.
- If a noncognitive assessment is to be administered, plan the timing of its administration and the entry of its results into the placement system.
- Make sure that the MMA placement is recognized by the system's registration blocks or prerequisite requirements so that students who are bumped up can register for the appropriate courses.
- Develop a placement report for each student that is easy to interpret. The goal should be to convey the placement result, not raw scores on tests that will no longer be the sole determinant of placement. If students and advisers simply receive all the individual measures and try to make sense of them, the rules may not be applied correctly and placement results are likely to be inconsistent from student to student. Even in a directed self-placement environment, a clear placement result based on institutionally approved rules will help students make their decisions.

The IT department should be included in conversations about these options to improve efficiency and the reliability of the measures captured. The IT staff should advise on how to automate as much of the new placement system as possible: how to integrate it within the current data system and how to ensure that the necessary data are extracted, stored, and available for use with as little human intervention as possible. Because IT departments often have workloads determined months in advance, notifying IT early about plans to make the transition to MMA is important to ensure that the staff will have the time to make adjustments and resolve any issues before the expected rollout of the new system.

Some level of automation is required to maintain consistent standards for all students going through the placement process and to be able to place large numbers of students effectively. Multiple measures rules can sometimes be built into existing placement test systems, such as ACCUPLACER, yielding a placement result in a manner similar to that of the traditional testing process. However, student data on measures like high school GPA and noncognitive assessments must be made available to these placement systems, usually through an upload process, which may be cumbersome.

In some cases, it's preferable to work with the college IT staff to build the MMA rules into the school's MIS, where the measures are likely to be entered and stored. Automation of placement is already the norm at most colleges that have a traditional placement test in place. When the test score is recorded, it is usually automatically fed into the MIS in a way that blocks registration for any courses above the student's placement level in math or English. This is also what MMA can look like: Students' scores on the measures are entered or uploaded into the MIS, and a set of logical rules populate a placement field with the MMA placement. In the case of decision rules, this is usually an if-then statement referencing other fields. In the case of an algorithm, other software may be required to calculate the probability of success or the appropriate placement.

Advisers and counselors should create clear guidelines for communicating with students about their placement results. As a departure from the long-established placement test system, MMA requires a cultural change around the adviser-student placement conversation. Because of the clarity and familiarity of placement test scores used in the past, advisers may struggle at first to treat MMA placement as the “correct” placement. Before the new system is operational, advisers should receive information about the predictive power of measures such as high school GPA, and they should be involved in crafting the language used to communicate with students about the basis for placement results under MMA.

Once the placement can be reliably generated in a timely manner for all incoming students, the messaging should be consistent. Advisers must have clear MMA placement results, and not just the results of the measures themselves. While students should be given some basic information about what informed their placement, they do not need to be told how their MMA placement compares with the previous test-only placement. Instead, advisers should communicate to students that the goal is to place them appropriately.

Consider the implications for teaching responsibilities and student eligibility for services. Use of MMA may change course enrollment, including a possible reduced need for developmental courses. This may affect classroom size, demand for faculty qualifications for different kinds of courses, and so on. Students’ access to some services, such as federal TRIO programs (outreach and student services programs designed to identify and provide services for individuals from disadvantaged backgrounds), supplemental instruction, or other special programs, may be tied to their developmental education needs. Staff professional development offered at the beginning of the project can help ensure that staff members are comfortable with the roles they will play.

Administrators may need to motivate staff members to put in the thought and effort that MMA design requires. Administrators who hold staff members accountable to timelines and milestones are more likely to see MMA implemented as intended and on time. Administrators overseeing MMA development should try to attend as many of the early planning meetings as feasible and stay engaged as the process moves forward.

How Can We Make Sure That the System Works as Intended?

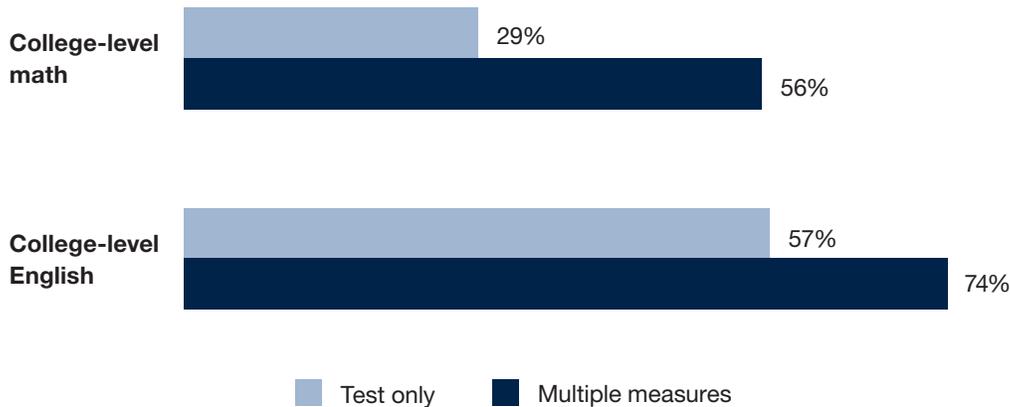
Colleges will want to know how their MMA placements compare with those under the traditional system. Are students registering for the right courses? Is there an appropriate number of course sections? Are different groups of students being affected differently?

Background

In the logistical pilot conducted by the ten colleges in Minnesota and Wisconsin in the summer of 2017, MMA appeared to make a difference in how students would be placed.¹⁷ The numbers in

17. The ten participating colleges were not required to change students’ actual placements during the pilot, only to generate their MMA placements in real time so that it would be logistically feasible to apply them if desired. While most colleges did not choose to change real student placements in this period, a few did so. In the second phase of this project, MMA placements will be applied, and student outcomes will be tracked.

FIGURE 2
**Percentage of Students Placed in
 College-Level Courses, by Placement System,
 2017 Pilot at Ten Colleges**



SOURCES: Placement data collected from the ten Minnesota and Wisconsin colleges participating in the pilot.

NOTES: Most colleges ran their pilots for a week or so in June or July, with the exception of one Wisconsin college that continued its pilot for several months, yielding much higher sample sizes.

Colleges are equally weighted in the averages displayed.

Figure 2 represent, on average, what would have happened if students had been placed under MMA compared with what would have happened if they were not. While there was variation in the numbers across colleges, there were some clear themes. When using ACCUPLACER alone, over half the pilot students placed into developmental courses in math, and nearly half did so in English. In both math and English, placements generated using the MMA system were much more likely to put students into college-level courses, as intended. On average, across all ten colleges, an additional 28 percent of students placed into college-level math, and an additional 17 percent placed into college-level English under the MMA pilot rules.

Recommendation

Once MMA placements are being administered, either in a pilot or on a large scale, it is important to monitor the process and its results, especially at first. Regular check-ins should occur with advisers to get feedback on how meetings with students are going. Students’ actual course registrations should be checked against the placements generated by the automated system. Finally, to ensure that placements are not deviating from expectations in the number of course sections needed, colleges should periodically check that placements into the relevant courses roughly correspond to available seats.

Colleges piloting their programs should analyze data on the measures and student placements. It’s a good idea to periodically calculate students’ placements under old test-only rules as well as the new MMA rules to monitor the percentage of students whose placement is being changed by the

new system. This information is important for understanding whether MMA is making a difference, as well as for planning future course sections. Finally, this is a good opportunity to look for any changes in the way different groups of students are placed, being especially mindful of equity considerations. For example, how do MMA placements of students of color compare with those of white students? Are there gender differences in placement rates under MMA? Are the gaps between these groups' rates of placement into college-level courses shrinking, staying the same, or growing with the introduction of MMA?

What Are the Costs of MMA Design and Planning?

The MMA system requires resources — personnel, equipment, and facilities — from across the college campuses, both for its design and setup and for its ongoing operation.

The initial investment has three components: data collection, data analysis, and preparation of the staff and systems. First, to inform creation of placement rules, colleges or consultants must collect historical data on students' characteristics, including high school transcripts, if possible; their placements based on traditional placement tests; and their subsequent college outcomes. These data are already available in some colleges, but in others, more extensive data collection is needed, and in some colleges it may not be feasible at all. Second, staff members can analyze internal data or external data from placement rules in other college systems, to determine a new decision rule based on multiple measures of student readiness (or a new placement algorithm). Third, resources must be allocated to make changes to internal computer systems, to train staff members in the new placement system, and to purchase any new instruments used to assign placement.

Ongoing operations require modest resources relative to the status quo. Staff members must continue to collect information from entering students for the new placement rules. In addition, staff time may be needed to use the MMA rules to assign students to developmental education or directly to college-level courses. This second ongoing cost may be avoidable with sufficient automation.

The following estimate represents the expected cost of introducing MMA to a two-year college in Minnesota or Wisconsin, relative to the cost of “business as usual” placement. It covers the resources required for MMA with respect to (1) administrative setup and data collection for the assignment rules, (2) the creation of the decision rules, and (3) the application of the new rules at the time of testing. At present, information is not available on costs for administering placement tests, which may be slightly higher for MMA depending on the complexity of the new decision rules. Changes in enrollment affecting developmental and college-level courses may also involve costs, which will vary by college; such costs are not estimated here.

The costs were calculated for the ten pilot colleges using the ingredients method:¹⁸ Costs were derived from the inputs (resources in hours of time or units of materials) used at each college, multiplied by standardized prices per input. (The use of standardized prices allows these cost estimates to be compared with estimates from other studies.) All costs are expressed in present value 2018 dollars.

18. Levin et al. (2017).

Information on ingredients was collected from survey or interview information provided by staff members who implemented the new testing protocols. Information on input prices and overhead costs is from secondary sources.

Table 1 presents the average cost per college. Resources for personnel to implement the new placement system are divided into several groups. Within the college, the groups are IT/computing staff, responsible for creating new computing and data infrastructure (and some data management); members of the testing office staff and senior staff (including faculty and registrars), responsible for creating the new decision rules and implementing them during and after the students take the placement tests, as well as advising students about courses; and administrative staff members, supporting the implementation of the new placement system. Outside the college, the personnel costs cover time from the evaluation team that helped advise on the new rules. These external costs are allocated evenly across the sites per state and are priced using local pay rates. If this pilot were to be replicated in other Minnesota or Wisconsin colleges without MDRC or CCRC input, this technical assistance time would likely be incurred by someone else. It is possible that staff members at the state system-level offices also committed time to MMA; these costs are unavailable and thus excluded from Table 1. In addition to personnel costs, the estimate includes fringe benefits and all other operating costs (overhead and facilities).

Across the five colleges in Minnesota, the average cost to introduce the new system is \$48,520, with the costs varying from \$24,150 up to \$75,710. Across the five colleges in Wisconsin, the average cost to introduce the new system is \$63,730, with a range from \$50,550 up to \$89,580. These costs accrued over the course of approximately one year, from the beginning of the project in September 2016 through the end of the pilot in summer 2017. Colleges getting started with MMA placement should allow at least this much time to develop and pilot rules before trying to scale up the system.

Many of the cost components are one-time costs, for creation of IT data systems and time allocated for program officers, senior faculty and staff members, and evaluators to decide on the specifics of the MMA system and undergo training on its use. Thus, operating costs should be lower than these estimates. But the estimates here are likely to be conservative: Some persons involved in MMA may not have been accounted for, and a decision rule may be more complex to implement than those in the pilot and may need to be revised within a few years.

The resources required for designing and operating MMA are modest but not trivial. A cost-effectiveness analysis will follow in the next phase of research, when information on the outcomes of MMA is available, using the cost estimates presented here in combination with operating costs.

Costs for Introduction of Multiple Measures Assessment, 2017 Pilot at Ten Colleges

TABLE 1

PERSONNEL (FTEs)	INGREDIENT PRICE PER FTE, MINNESOTA (\$)	AVERAGE PERCENTAGE OF FTE, MINNESOTA	INGREDIENT PRICE PER FTE, WISCONSIN (\$)	AVERAGE PERCENTAGE OF FTE, WISCONSIN	OVERALL AVERAGE PERCENTAGE OF FTE
Information technology	59,380	3.6	67,340	3.4	3.5
Testing office staff	44,500	9.4	56,750	18.2	13.8
Faculty and senior staff	68,100	16.0	79,350	11.8	13.9
Administrative staff	39,350	2.6	42,490	8.0	5.3
Technical assistance	62,350	3.0	62,660	3.0	3.0
<hr/>					
AVERAGE COSTS (\$)	MINNESOTA		WISCONSIN		OVERALL
Personnel	20,160		27,330		23,750
Fringe benefits	6,650		9,020		7,840
Overhead/facilities	21,700		27,390		24,550
Total	48,520		63,730		56,130

SOURCES: Ingredient information on full-time equivalents (FTEs) from surveys and interviews with key personnel at each college. Salary data from the Minnesota Management and Budget Office, indeed.com, and payscale.com. Technical assistance time estimated from CCRC and MDRC evaluators' timesheets. Fringe benefits calculated from ratio of fringe benefits to total salaries (2013 Integrated Postsecondary Education Data System [IPEDS] data for 846 public community colleges). Overhead/facilities calculated from ratio of all other expenses to total salaries (2013 IPEDS data for 846 public community colleges); includes costs for Learning and Study Strategies Inventory (LASSI) units; tests; conference attendance.

NOTES: FTE represents the average annual salary for the equivalent of a full-time employee. Estimates use 2018 dollars, with present value calculated using a 3 percent discount rate. Amounts are rounded to \$10. Rounding may cause slight discrepancies in calculating sums. Averages are unweighted.

CONCLUSION

This guide presents some key considerations for colleges contemplating multiple measures assessment: what first steps to take, how to choose appropriate measures to use and how they can be used, what challenges to expect, how to manage the logistics, and how to make sure the new system works as intended, as well as an idea of the costs involved.

Students who need developmental education to succeed in college-level courses should be placed into developmental courses. However, because developmental education requires student time and expense, it may discourage some potential college students. It is important to ensure that those who could succeed in college-level courses get the opportunity to take them upon entry into college. The use of an MMA placement strategy should increase the chances that students will be optimally placed, which should then increase their chances of future success.

APPENDIX
A

**The Policy Context in Minnesota
and in Wisconsin**

Minnesota

In 2017, the Minnesota Legislature required the Minnesota State Board of Trustees to prepare a plan to reform developmental education offerings. The resulting plan includes the following developmental education reforms:

- Accelerated courses (combining two or more developmental courses into one)
- Expansion of professional development for faculty teaching developmental education
- System-wide multiple measures placement guidelines to be implemented by the start of the 2020-2021 academic year

Earlier state-level placement reforms enacted over the last three to five years include the following:

- An ACCUPLACER exam with additional questions designed to provide a weighted score that could potentially boost the raw score of a student on the “bubble,” just below the college-level cut score
- ACCUPLACER exam waivers for students whose ACT, SAT, or Minnesota Comprehensive Assessment (MCA) scores demonstrate college readiness

The weighted ACCUPLACER scores and the waivers continued to be used in the piloted MMA system.

See Appendix Table A.1 for more information on the participating colleges in Minnesota, including graduation, enrollment, and retention rates, and averages for the entire system.

APPENDIX TABLE A.1

Characteristics of the Minnesota Colleges

COMMUNITY COLLEGE	LOCATION	URBANIZATION ^a	3-YEAR GRADUATION RATE (%)	ENROLLMENT (STUDENTS)		RETENTION RATE, FALL 2016 (%)	
				FIRST-TIME	TOTAL	FULL-TIME	PART-TIME
Anoka Ramsey Community College	Coon Rapids	Suburb: Large	20	1,091	9,058	54	43
Century College	White Bear Lake	Suburb: Large	13	1,203	8,925	58	45
Minneapolis Community and Technical College	Minneapolis	City: Large	14	1,014	7,982	51	40
Normandale Community College	Bloomington	City: Large	22	1,462	9,810	58	51
North Hennepin Community College	Brooklyn Park	Suburb: Large	13	773	6,864	61	47
Average of Participating Institutions			16	1,109	8,528	56	45

SOURCE: Integrated Postsecondary Education Data System (IPEDS) 2016 data.

NOTES: Averages are unweighted.

^aIPEDS assigns urban-centric locale codes based on U.S. Census Bureau methodology.

Wisconsin

Wisconsin's higher education system is relatively decentralized; colleges have autonomy to make placement decisions. The 16 two-year colleges in the Wisconsin Technical College System (WTCS) were in the early stages of considering multiple measures when MDRC began working with them.¹

- Before the start of the pilot, all WTCS institutions used ACCUPLACER or the ACT's COMPASS test, as well as accepting the ACT or similar tests, to place new students into courses, but they were exploring the feasibility of developing new systems.
- Most WTCS institutions, including all those participating in this project, were piloting corequisite courses during the 2016-2017 and 2017-2018 school years. The most widespread example was the use of the nationally recognized Accelerated Learning Program model in English, which had been implemented in several WTCS schools.

These existing aspects of developmental education placement remained in effect during the pilot.

See Appendix Table A.2 for more information on the participating colleges in Wisconsin, including graduation, enrollment, and retention rates, and averages for the entire system.

1. Wisconsin has two college systems: the Wisconsin Technical College System and the University of Wisconsin System, whose two-year community colleges are referred to as the University of Wisconsin Colleges (UWC). Many of the UWC community colleges had already implemented some form of multiple measures assessment into their registration processes as of 2015. Only WTCS colleges participated in the Great Lakes pilot.

APPENDIX TABLE A.2
Characteristics of the Wisconsin Colleges

COMMUNITY COLLEGE	LOCATION	URBANIZATION ^a	3-YEAR GRADUATION RATE (%)	ENROLLMENT (STUDENTS)			RETENTION RATE, FALL 2016 (%)	
				FIRST-TIME	TOTAL	FULL-TIME	PART-TIME	
Fox Valley Technical College	Appleton	Suburb: Midsize	38	807	10,890	71	51	
Lakeshore Technical College	Cleveland	Rural: Distant	58	281	2,653	67	63	
Madison College	Madison	City: Midsize	NA	1,765	15,616	NA	NA	
Moraine Park Technical College	Fond du Lac	City: Small	46	828	6,041	75	64	
Notheast Wisconsin Technical College	Green Bay	City: Midsize	42	973	10,253	57	46	
Average of Participating Institutions			46	931	9,091	68	56	

SOURCE: Integrated Postsecondary Education Data System (IPEDS) 2016 data.

NOTES: NA = not available.

Averages are unweighted.

^aIPEDS assigns urban-centric locale codes based on U.S. Census Bureau methodology.

APPENDIX
B

**MMA Approaches at Ten Minnesota
and Wisconsin Colleges**

APPENDIX TABLE B.1

**MMA Approaches at Colleges in the Great Lakes
Multiple Measures Assessment Project**

COLLEGE NAME	STATE	MMA APPROACH AND ORDER OF STEPS^a	NONCOGNITIVE ASSESSMENT	COLLEGE-READY HIGH SCHOOL GPA LEVEL^b
Anoka Ramsey	MN	1. Exemptions (AP/IB, ACT, SAT, MCA scores) 2. ACCUPLACER 3. GPA and LASSI	LASSI	3.0 GPA
Century	MN	1. Exemptions (ACT, SAT, MCA scores) 2. ACCUPLACER 3. GPA and/or LASSI	LASSI	3.0 GPA
Fox Valley	WI	1. Exemption (ACT score) 2. ACCUPLACER 3. Exemptions from further testing based on cut scores or program prep courses 4. GPA + Grit + background questions added to ACCUPLACER score	Grit Scale	Not applicable
Lakeshore	WI	1. Exemptions (GPA, ACT, GED scores; AP courses; certain programs exempt) 2. ACCUPLACER 3. GPA and/or ACT Engage	ACT Engage	2.8 GPA
Madison	WI	1. Exemption (ACT score) 2. ACCUPLACER 3. GPA and ACT Engage	ACT Engage (optional)	2.6 GPA
Minneapolis Community and Technical	MN	1. Exemptions (ACT, SAT, MCA scores) 2. GPA or GPA and ACCUPLACER	LASSI (optional)	≥ 2.3 GPA for English, ≥ 3.1 GPA for math, ≥ 2.4 GPA for reading
Moraine Park	WI	1. GPA and ACT Engage 2. ACCUPLACER and ACT Engage	ACT Engage	3.25 GPA
Normandale	MN	1. Exemptions (AP, ACT, SAT, MCA scores) 2. ACCUPLACER 3. GPA or GPA and LASSI	LASSI	2.5–2.7 GPA for math, 2.1–2.3 GPA for English and reading
North Hennepin	MN	1. Exemptions (ACT, SAT, MCA scores) 2. ACCUPLACER 3. GPA and/or LASSI	LASSI	3.0 GPA
Northeast Wisconsin	WI	1. Exemption (GPA) 2. ACT + Grit or ACCUPLACER + Grit (automated into ACCUPLACER)	Grit Scale	2.6 GPA

NOTES: The table shows preliminary decisions that were used in the pilot phase of the project in summer 2017. Some approaches have since been adjusted.

^aAP = Advanced Placement; IB = International Baccalaureate; GED = General Educational Development. Test scores that may result in exemptions include the ACT, the SAT, and the Minnesota Comprehensive Assessment (MCA).

^bAll high school grade point averages (GPAs) are based on a 4.0 scale.

APPENDIX
C

**Further Reading on
Noncognitive Assessments**

Further Reading on ACT Engage

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ABOUT MDRC

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- Promoting Family Well-Being and Children's Development
- Improving Public Education
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- Supporting Low-Wage Workers and Communities
- Overcoming Barriers to Employment

Working in almost every state, all of the nation's largest cities, and Canada and the United Kingdom, MDRC conducts its projects in partnership with national, state, and local governments, public school systems, community organizations, and numerous private philanthropies.