Implementing and Scaling Multiple Measures Assessment in the Context of COVID-19

Susan Bickerstaff, Elizabeth Kopko, Erika B. Lewy, Julia Raufman, and Elizabeth Zachry Rutschow

As students enter postsecondary education, placing them into courses that meet their skill level, provide challenge, and promote forward progress toward a credential is key. Traditionally, community colleges and other broad-access institutions have assessed college readiness in math or English using a single standardized placement test score. However, more and more institutions are moving toward multiple measures assessment systems, which combine two or more indicators of student preparation — like placement test scores, high school records such as GPAs, and noncognitive assessment scores — to determine whether a student will be required to take a developmental course. Evidence suggests that the use of multiple measures assessment can be one of the most promising avenues for improving student success.[1] Indeed, a range of multiple measures assessment models has been shown to increase the rate of placement, enrollment, and completion in college-level courses as compared to single test-based systems.[2] Importantly, regardless of the specific model or measures used, the most effective and equitable multiple measures assessment systems are those that move more students — particularly students of color and low-income students, who are disproportionally referred to developmental education programs — into college-level courses and supports.[3]

State systems have played an increasingly prominent role in encouraging and supporting colleges to implement effective developmental education reforms, and more have begun to recommend or require multiple measures assessment for placement.[4] Implementing multiple measures assessment presents challenges, including garnering buy-in for granting more students access to college-level courses, collecting and using institutional data to make decisions on the most effective and equitable process for determining placement, and marshaling the resources to redesign placement practices and train staff accordingly.[5] Enacting these changes in a resource-constrained environment in which institutions are tasked with an ever-growing number of student success initiatives presents an additional challenge. State systems can mitigate these challenges and promote effective practices by adopting strategic policies and providing supports to colleges.

Perhaps counterintuitively, the onset of COVID-19 created opportunities for state systems to facilitate institutional adoption of multiple measures assessment. In spring 2020, as large numbers of colleges moved to remote learning and work, it was often infeasible to continue offering in-person, proctored placement tests. While institutions may have continued administering the assessments remotely, either through online remote proctoring services (e.g., Examity) or through local remote online proctoring via video conferencing services (e.g., Zoom), in many cases testing capacity was significantly reduced. As a result, institutions sought out new ways to assess and place students. Through changes to policy and re-allocation of resources,

TYPES OF MULTIPLE MEASURES ASSESSMENT MODELS

Decision Rule systems place students according to a series of "if–then" statements dependent upon their scores on multiple measures. Typically, if a student scores above a specified threshold on at least one measure, then they receive a college-level placement. If a student scores below the specified threshold on every measure, then they are placed into a developmental prerequisite or corequisite course.

Decision Band systems place students according to where they fall relative to a specified range of scores on a certain measure. Students with scores above or below the specified range are placed as they would have been under a traditional placement system. Students with scores above the range receive a college-level placement, and students with scores below the range receive a developmental prerequisite or corequisite placement. Students with scores that fall within the specified range are further evaluated according to additional criteria.

Algorithm systems use historical data to determine how well different factors (placement test scores, high school GPAs, time since high school graduation, etc.) predict student success in college-level courses. Using the results of those analyses, a placement algorithm is developed that combines and weights incoming students' values on selected measures to establish a placement score for each student. The placement score is typically interpreted as the probability that a student will pass a college-level course in a given subject.

four states — Indiana, Virginia, Texas, and Washington — supported large-scale changes to placement practices. These states exemplify how systems and institutions can rapidly adapt to overcome common challenges associated with implementing multiple measures assessment. In the short case studies that follow, based on interviews with system leaders as well as college administrators, faculty, and staff,[6] we summarize each state's pre-COVID assessment and placement policies and practices and describe the system-level actions taken to mitigate common multiple measures assessment implementation challenges: (1) establishing buy-in, (2) providing implementation support and resources, (3) combatting initiative fatigue, and (4) establishing data-driven, continuous improvement evaluation processes.

EVALUATION OF MULTIPLE MEASURES ASSESSMENT IN NEW YORK STATE SHOWS POSITIVE EFFECTS ON STUDENT OUTCOMES

Working with the State University of New York (SUNY), CAPR researchers conducted a randomized controlled trial to measure the effects of multiple measures assessment at seven SUNY community colleges. Nearly 13,000 students were assigned to a program group that was placed using an algorithm that considered students' high school grades and standardized test scores, or to a control group that was placed using standardized test scores alone (the status quo). Among the key findings:

- **Many program group students were placed differently than they would have been under the status quo system; most were placed higher.** In math, 16 percent of program group students were "bumped up" to a college-level course; 10 percent were "bumped down" to a remedial course. In English, 44 percent were bumped up and 7 percent were bumped down.

- **In English, program group students had higher rates of completion of a college-level course.** While gains declined over time, program group students were still 5.3 percentage points more likely to enroll in and 2.9 percentage points more likely to complete a college-level English course than their peers through the third term.

- **In math, program group students initially had better rates of course completion, but these gains were not sustained over time.** In comparison to their peers, program group students had modestly higher rates of enrollment in and completion of a college-level math course in the first term, but these rates faded and then disappeared.

- **When broken down by gender, Pell recipient status, and race/ethnicity, all student groups benefited from placement using the algorithm (except for men in math).** There were higher course completion rates in English for Black students (by 7.1 percentage points), Pell recipients (by 4.5 percentage points), and women (by 4.6 percentage points) in the program group.

- **Students were strongly affected by their alternative placements.** The subset of the program group that was bumped up into college-level courses was 8–10 percentage points more likely to complete a college-level math or English course within three terms. Program group students who were bumped down into developmental courses were 8–10 percentage points less likely to do so.

Case Studies

Indiana

At Ivy Tech Community College, the singly accredited community college in the state of Indiana, the pandemic prompted full-scale implementation of EdReady.

Since 2014, in conjunction with Ivy Tech Community College's scaling of its redesigned developmental math and English courses and its introduction of math pathways, the statewide community college in Indiana has been implementing an assessment system wherein students select the specific measures and processes used to determine their placement level. Options for placement have included using high school GPA, SAT, or ACCUPLACER. Students may also elect to enroll in developmental prerequisite or corequisite courses. In 2018 at a small number of campuses, Ivy Tech also began offering students the option of using EdReady — which features an adaptive low-stakes knowledge inventory and assessment available in both math and English — from the NROC Project. Upon completion of the knowledge assessment, students may opt to use their initial results to determine their course placement or they can receive an individual, personalized study path composed of learning activities they can work on in the EdReady platform to place into a higher-level course.

In spring 2020, in response to the COVID pandemic, Ivy Tech moved rapidly to scale implementation of the EdReady knowledge assessment across its 45 campus and site locations. Students at all campuses are offered the option to take the knowledge assessment in a non-proctored, self-paced environment (students who wish to self-place or provide other measures are still able to do so). EdReady provides students with multiple attempts to modify their placement through the assessment, which does not serve as a one-shot exam. Importantly, by providing students agency, Ivy Tech established a more holistic process that may allow non-cognitive factors, such as motivation, to play a part in the placement process. As part of the scale-up, Ivy Tech strove to foster an asset-based mindset regarding placement with a focus on the knowledge and skills students already possess when they enroll in the institution.

Colleges seeking to realize the benefits of multiple measures assessment must commit to a placement scheme that places more students into college-level courses than would have been placed using a single measure.

To rapidly scale up these new placement practices, each campus formed a cross-functional team composed of a small group of staff representing all the areas of the campus touched by the EdReady knowledge assessment, including staff involved with dual credit and student support services. This team worked closely with the IT department to automate the assessment process and to make sure that the EdReady platform, the student information system (Banner), and the student portal were aligned for the system's three different math pathways and different programs of study. System-led professional development training

with campus teams was designed to shift the institutional mentality away from a deficit perspective of assessment that focuses on revealing what students do not yet know to one that emphasizes what students do know.

Colleges seeking to realize the benefits of multiple measures assessment must commit to a placement scheme that places more students into college-level courses than would have been placed using a single measure. This may require a shift in mindset among college stakeholders about how many students are prepared for college-level work. Efforts to include more faculty and staff responsible for enacting new policies and practices in planning activities provides an efficient way to help college personnel understand new procedures as well as new ways of thinking about the purpose of assessment. Ivy Tech's engagement of campus-level cross-functional planning teams and its emphasis on recognizing the knowledge and skills that incoming students have already developed highlight one strategy for mitigating the challenges in implementing multiple measures assessment.

Virginia

During the pandemic, all institutions in the Virginia Community College System (VCCS) began using self-reported high school GPA as the primary placement measure for recent high school graduates.

Since 2013, VCCS policy has allowed the state's community colleges to use multiple measures assessment; however, this policy required the use of at least one standardized test score (from, e.g., the ACT, SAT, or Virginia Placement Test) to place students into first-year math and English courses. During the 2019-20 academic year, VCCS began a pilot at eight community colleges to use self-reported cumulative high school GPA and the highest level math course taken to place recent high school graduates.[7] Benchmarks were identified for three placement tiers: gateway math and English courses (for those with a GPA of 3.0 or above), gateway courses with corequisite course supports[8] (for those with a GPA of 2.0–2.99), and noncredit transitional courses (for those with a GPA below 2.0). Students can use standardized test scores to override their GPA placement and bump themselves up into a higher placement category. As part of the pilot, colleges offered students math pathways in quantitative reasoning, statistics, and pre-calculus.

The pilot colleges also implemented a guided self-placement process for students who graduated more than five years ago. Default placement for older students is in gateway courses, but advisors can recommend corequisite supports or other courses if a student feels it would be helpful.

> **VCCS provided significant guidance and resources to colleges, including student questionnaires to help nontraditional students place themselves.**

In spring 2020, when in-person testing was no longer an option, the system waived the 2013 placement policy mandating the use of at least one standardized test for all remaining non-pilot colleges. Those colleges (only some of which had corequisite courses) asked VCCS for guidance on

how to rapidly implement and scale the new high school GPA approach. In response, the system provided significant guidance and resources, including student questionnaires to help nontraditional students place themselves, a memo to colleges on conducting direct enrollment with high school GPA and test scores, and a set of resources hosted in the system's learning management system for college administrators to facilitate resource sharing between pilot schools and the rest of the colleges. Though placement looked different at colleges that did not yet offer corequisite courses, the system helped each college adapt the direct enrollment model to the courses they were offering. Now, the system plans to formalize the process of resource sharing and mentoring as it implements the other elements of the direct enrollment pilot at the rest of the VCCS institutions: corequisite courses and math pathways. For students entering in fall 2021, seven colleges in a second cohort will implement direct enrollment with corequisite courses using high school GPA and test scores and partner with a mentor college of similar size and student composition from the pilot. The second cohort will then assist a final cohort of eight VCCS colleges in implementing the new direct enrollment and corequisite policy for students entering in fall 2022.

The adoption of multiple measures assessment is a labor-intensive and time-consuming process that often requires colleges to mobilize or reallocate valuable resources to implementation efforts. It is not uncommon for colleges to seek outside assistance in the development of multiple measures assessment, either in the form of technical assistance from consultants and researchers or by collaborating with colleges who are further along in the implementation process. Virginia was able to quickly pivot from pilot to a full-scale adoption of the use of high school GPA by taking advantage of resources developed during the pilot and sharing those out across the system. The centralization of the system helped smooth out the quick change.

Texas

During the pandemic, the Texas Higher Education Coordinating Board (THECB) granted a waiver for students without access to placement testing so that institutions may use other indicators such as high school GPA to determine best placement options for entering students.

In fall 2003, the Texas legislature passed the Texas Success Initiative (TSI), which requires every non-exempt student entering a Texas public college or university to demonstrate readiness for enrollment in entry-level college courses using a state-approved assessment. While the legislation allows for a number of ways that students can be exempt from this requirement (e.g., by meeting qualifying standards on the SAT, ACT, or the high-school-administered State of Texas Assessments of Academic Readiness), in 2018 almost 40 percent of Texas students who were assessed for college readiness received a placement based on their Texas Success Initiative Assessment (TSIA) scores.

In March 2020, Texas colleges and universities discontinued in-person instruction due to the COVID pandemic. In response, the Commissioner of Higher Education approved a TSI waiver for all non-exempt students who did not have access to the TSIA through the 2021-22 academic year. In place of the TSIA, the THECB recommends that institutions use other indicators, such as high school GPA, high school course-taking records, and evidence on

noncognitive factors, to help them determine placements for their students. In many cases, colleges and universities have opted to implement a decision-rule system that integrates measures such as overall high school GPA and highest course taken in a subject.

The THECB has not yet determined what assessment and placement policies will be put in place at the conclusion of the TSIA waiver period. But the THECB is using this period of forced experimentation to better understand the impact that alternative systems can have on students and how that understanding can be used to better inform future assessment policies.

The data being collected will permit the THECB to assess the relationship between the use of particular multiple measures assessment systems and student outcomes.

In many colleges, placement data have not been collected or linked to student outcomes, which stymies efforts to evaluate the performance of specific practices or policies. In contrast, the THECB will require all public institutions in Texas to report the criteria used during the TSI waiver period. In addition, the THECB will work closely with 13 institutions to track the specific placement criteria used to place each student. These data will be collected using the THECB's traditional, though modified, reporting protocols, as well as through new surveys intended to capture a greater level of detail around the measures and thresholds used in placement decisions. The data being collected will permit the THECB to examine the utility of a variety of measures, better understand the impact that specific cut scores can have on the composition of student placement into college-level courses, and assess the relationship between the use of particular multiple measures assessment systems and student outcomes. Importantly, the THECB plans to use these data to better inform placement processes after the TSI waiver period expires.

Washington
In response to the pandemic, in Washington, a state with a loosely federated higher education system, the Student Success Center provided webinars and coaching to colleges to support the development and refinement of multiple measures assessment implementation plans.

For nearly a decade, community and technical colleges in Washington State have used multiple measures to place students into developmental or college-level courses in math and English. While institutions have significant local control, statewide agreements have established placement reciprocity across institutions and provided guidance for using the Smarter Balanced Assessment, a high school Common Core exam, for placement. In addition, the system has encouraged its colleges to use additional measures like high school transcripts. Prior to the pandemic, at least 27 of the 34 community and technical colleges used high school transcripts to some extent for placement; however, these policies often were specific to local high schools and required grades in specific courses to be received within a short timeframe. Thus, they often impacted small numbers of students.

In spring 2020, as the colleges were faced with devising alternative placement approaches, the state's Student Success Center deployed resources to support institutions in adopting

thoughtfully designed, sustainable multiple measures assessment practices. The Success Center also hosted a four-part webinar series during the summer of 2020 to help colleges reflect upon, build on, and refine their quickly enacted spring placement strategy for fall 2020. The webinars covered the use of high school transcripts, guided self-placement practices, and advising practices, among other topics. Rather than endorsing a particular multiple measures assessment approach, the Success Center emphasized that colleges should make implementation decisions with the goal of ensuring greater and more equitable access to college-level courses.

As a follow-up to these webinars, the Success Center is using funds from College Spark, a Washington-based foundation, to engage a cohort of 12 colleges that have been working together for over two years to plan and implement guided pathways reforms.[9] In the context of COVID, teams from these institutions are being asked to explore their placement philosophies, how onboarding practices can be designed with equity in mind, and how multiple measures assessment strategies can be implemented in ways that align with ongoing curricular and programmatic reforms. In fall 2020, the teams were convened for an interactive virtual session on multiple measures assessment and received coaching from Success Center staff; they will reconvene for a second session in January 2021 to share their progress. Lessons learned from these early adopters will be shared with the rest of the institutions in the state.

The integration of reform strategies can help stave off initiative fatigue, which is particularly important in a resource-constrained environment.

Washington is one of many states that have begun to implement ambitious, large-scale reforms, such as guided pathways, in an effort to improve student success and reduce educational disparities. In this fast-moving reform environment, initiative fatigue presents a persistent risk to effective implementation of discrete interventions. Washington chose to make reforms to placement practices a key priority for institutions given COVID's disruptions to standardized testing. To integrate their efforts with current reforms already underway, they utilized their guided pathways cohort infrastructure to support planning for multiple measures assessment implementation. This integration of reform strategies can help stave off initiative fatigue, which is particularly important in a resource-constrained environment.

Conclusion

The COVID-19 pandemic has presented postsecondary systems and institutions with a myriad of challenges, including an abrupt transition to virtual instruction and remote service delivery, declining student enrollments, increasing demands on support services as students navigate schooling in the midst of so many unknowns, and significant budgetary constraints. These challenges have exacerbated gaps in opportunities, with low-income students and students of color bearing the disproportionate burden of the virus and the associated barriers to educational opportunity. At the same time, the pandemic has also created opportunities for institutions to decrease their reliance on standardized assessments. This can serve to help more students enroll in college-level courses sooner, with the aim of reducing disparities in outcomes and improving student success.

However, given the various choices institutions must make about measures and cut points, multiple measures assessment must be enacted with thoughtful attention to implementation. Without careful planning, institutions implementing multiple measures assessment may not increase access to college-level courses. These case studies illustrate that state systems have a pivotal role to play in bolstering college course taking by using policy to reduce barriers to college-level course enrollment and providing resources and guidance on placement practices. Through formative evaluation, reform coordination, professional development, and resource sharing, state systems can support institutions to implement multiple measures assessment approaches that narrow opportunity gaps and increase student success. As institutions across the country implement, refine, and scale alternative approaches to determining student readiness for college-level courses, leaders, reformers, and researchers are presented with new opportunities to advance our understandings of how placement policies and practices can improve student outcomes.

State systems have a pivotal role to play in bolstering college course taking by reducing barriers to college-level course enrollment and by providing resources and guidance on placement practices.

TABLE 1. Overview of Modifications to Student Assessment Practices Due to COVID Pandemic

State	Number of Public Two-Year Institutions	Governance Model	Change in Practice
Indiana	45	Centralized (Ivy Tech Community College oversees all two-year institutions.)	Scaled use of EdReady as an assessment option at all campuses
Virginia	23	Centralized (The Virginia Community College System oversees all two-year institutions.)	Scaled use of self-reported GPA as primary placement measure at all colleges
Texas	63	Decentralized (The Texas Higher Education Coordinating Board is the state agency for all public institutions, including both two-year and four-year institutions.)	Waived placement test for students with no access to testing, allowing institutions to use other indicators to determine placements
Washington	34	Decentralized (The State Board for Community and Technical Colleges coordinates and directs two-year institutions.)	Provided coaching and implementation supports to colleges to develop or refine campus-based multiple measures assessment policies

Notes

1. Barnett & Kopko (2021).

2. Barnett, Kopko, Cullinan, & Belfield (2020); Cullinan, Barnett, Kopko, Lopez, & Morton (2019).

3. Bahr (2010); Chen et al. (2020); Chen & Simone (2016).

4. Rutschow, Cormier, Dukes, & Cruz Zamora (2019).

5. Barnett et al. (2018); Cullinan et al. (2019).

6. In the summer of 2020, the Education Commission of the States funded exploratory work to help CAPR plan for the next generation of research on developmental education. To understand current reform trends, the impact of COVID-19, and policymaker and practitioner perspectives on priority research questions, we interviewed 107 system leaders and institutional administrators, deans, faculty, and staff from 14 states and Washington, DC. The case studies are based on selections from this research.

7. Babb (2019).

8. Corequisites allow students with a developmental referral to enroll directly in college-level math or English while co-enrolling in a learning support course.

9. Guided pathways is a national reform movement in which colleges fundamentally redesign their policies, programs, and services to better support student success (Jenkins, Lahr, Fink, & Ganga, 2018).

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Acknowledgments

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CENTER FOR THE ANALYSIS OF POSTSECONDARY READINESS
Teachers College, Columbia University
525 West 120th Street, Box 174, New York, NY 10027
P 212.678.3091 | @CAPR_deved
capr@columbia.edu | postsecondaryreadiness.org

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