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The objective of the Ohio Strong Start to Finish (SSTF) initiative is to increase the number of students who pass both gateway mathematics and English courses by the completion of their first year in college. Eighteen community colleges and 12 universities have joined with the Ohio Department of Higher Education, the Inter-University Council, and the Ohio Association of Community Colleges to participate in the Ohio SSTF project.

Currently, 33% of the students in the participating institutions complete the gateway mathematics and English courses by the end of their first year. The goal of the Ohio SSTF is to increase the number of students passing these gateway courses as part of a guided pathway within (by the completion of) their first academic year. Additionally, the Ohio SSTF project focuses on reducing the equity gap for students of color, students from economically disadvantaged backgrounds, students from rural areas, and students over the age of 25.

Five implementation forums have been created to provide recommendations to the Ohio SSTF leadership: The Data Implementation Forum, Equity and Inclusion Implementation Forum, Placement Implementation Forum, Co-requisite Implementation Forum, and Advising Implementation Forum. The membership in these forums represent the complete spectrum of public institutions of higher education in Ohio.

A first step toward the completion of gateway courses is placement in the course appropriate for the student’s preparation. Placement frequently occurs prior to the student’s arrival on campus and is based on standardized test scores, performance in high school, or institutionally designed criteria. Proper placement is critical to student progress; both over-placement and under-placement put student progression at risk. Over-placement, placing students beyond their level of preparation, leads to poor performance and the potential of the need to repeat a failed course. Under-placing adds an unnecessary course to a student’s program, costing the student monetarily, delaying progress in the student’s curriculum, and often negatively affecting student persistence. Unfortunately, there is no “sorting hat” that magically places students in the appropriate course. For example, the ACT recommends a 22 score on the mathematics exam to be prepared for a first course in College Algebra. However, their data
analysis predicts that 75% students attaining this score will complete their mathematics course with a C or better. Consequently, this measure can be seen as over-placing one fourth of the students.

Research has shown that a combination of measures frequently outperforms a single criterion for student placement. Multiple measure placement refers to any placement strategy that utilizes more than a single criterion to place students in college courses. Multiple measure placement strategies are frequently divided into two categories: compensatory multiple measures and multiple single measures.

**Compensatory Multiple Measures**: A system that combines or aggregates two or more measures to place students into appropriate courses and/or supports.

**Example**: A student must have
- a 3.0 or greater high school GPA and an 18 or greater on the ACT; or
- a 3.5 or greater high school GPA and a 15-17 on the ACT.

**Multiple Single Measures**: A system in which a student must achieve a designated standard on just one of several possible criteria.

**Example**: A student must have a 2.6 high school GPA or a 22 on the ACT, or 70% on the Department-administered placement test.

In this report we review promising practices in student placement and, in particular, the potential impact of a multiple measures placement strategy.

**Acknowledgments**

This work was supported in part by Strong Start to Finish, Education Commission of the States. The views expressed in this publication are those of the author(s) and do not necessarily represent those of Strong Start to Finish, Education Commission of the States, its officers, or employees. Strong Start to Finish is an emerging network of committed postsecondary leaders and philanthropists, working together to change institutional practice and policy across the nation and bring equity to education. Our goal is to significantly increase the number and proportion of low-income students, students of color, and returning adults who succeed in college math and English and enter a program of study in their first year of college. For more information, visit [www.strongstart.org](http://www.strongstart.org).
The goal of Ohio Strong Start to Finish is to increase student completion of their credit-bearing gateway mathematics and English in their first 12 months of matriculation, with a specific emphasis on closing the attainment gaps for students of color, adults over 25, rural students, and Pell-eligible students. The State of Ohio has an established goal that by 2025, 65% of Ohioans aged 25-64 will have a postsecondary credential of value. It is clear that Ohio cannot meet its attainment goal unless gaps in achievement are closed for underserved populations.

The Placement Implementation Forum is charged with developing collaborative solutions on the following items:

- Identifying state systems outside of Ohio and institutional leaders in innovative placement strategies that could be helpful in providing models for Ohio and/or individual campuses;
- Capturing evidence-based practices for improving institutional efforts and state policies, which result in increasing gateway completion for all students, while closing attainment gaps among diverse populations;
- Reviewing current statewide placement policies and recommending changes to the Ohio SSTF leadership teams to minimize barriers and accelerate promising process changes; and
- Recommending technical assistance that could be used for system and institutional improvements.

The Placement Implementation Forum will serve as an advisory group to the Ohio SSTF leadership teams on ways to improve placement policies and practices, which lead to greater numbers of gateway completers, while closing the achievement gap between diverse groups of students. The Placement Implementation Forum may also have recommendations for other placement and assessment areas that emerge and are germane to the goals of the initiative.
critical component of a student’s initial enrollment or return to college is aligning the course selections with the student’s prior academic background. This alignment has frequently been determined by the student’s performance on standardized and normed examinations such as the ACT, SAT, or ACCUPLACER. Recent studies have evaluated the impact of utilizing multiple measures for course placement.

A 2012 Community College Research Center research study analyzed the predictive ability of placement exams and multiple measures on more than 42,000 students enrolling in an urban community college system. The findings indicated that employing a multiple-measure placement strategy “could reduce severe misplacements by about 15 percent without changing the remediation rate, or it could reduce the remediation rate by 8 to 12 percentage points while maintaining or increasing success rates in college-level courses,” where severe misplacement means underplacing a student who could obtain a grade of B or better in the higher-level course. The analysis also indicated that standardized placement exams are more predictive in mathematics than in English.

In 2016, a consortium of 10 community colleges in Wisconsin and Minnesota, MDRC, and the Community College Research Center initiated a Great Lakes Multiple Measures Assessment Project. In the pilot study, students placing in remedial courses by a standardized test score could be reassigned into for-credit courses based on high school grade point average or a non-cognitive assessment. The project also identified challenges and cost of implementing a multiple-measures assessment. The placement strategy employed by the 10 colleges used ACCUPLACER test scores as the basis. For students not placing at the college level by the ACCUPLACER score but within a designated band, the high school grade point average or the results of a non-cognitive assessment provided additional decision
points. LASSI (Learning and Study Strategy Inventory), ACT Engage, and Grit Scale were used for the non-cognitive assessments. The high school GPA and non-cognitive assessment were used to “bump up” but never lower a student placement. Consequently, the placement strategies employed are examples of the multiple single measure approach.

Across all 10 campuses, the multiple measures strategies increased the number of students placing into college-level mathematics classes from 29% to 56%, and college level English from 57% to 74%. A follow-up research study due in fall 2020 will report the performance of students placed using this methodology.

To validate the impact of multiple-measure placement, CAPR collaborated with seven community colleges in the State University of New York system. Students enrolling at these institutions were randomly assigned one of two placement strategies: the standard placement strategy used by the college or a multiple-measures strategy created using historic student success information. The multiple-measures strategy used the high school GPA, placement test scores, time since graduation from high school, and historical student information to create an algorithm for placing the student. The multiple-measure placement algorithm was used to place the test group while the institution’s standard placement method using ACCUPLACER was used for the control group. The algorithm employed by these institutions is an example of compensatory multiple measures since all of the arguments are employed in the determination of the placement value.

The initial results for a cohort of more than 4,000 students showed that 14% of the students placed higher in mathematics with the multiple-measures algorithm than with ACCUPLACER alone, while 7% placed lower than with ACCUPLACER. Students in the mathematics test group were 3% more likely to enroll in and pass the college-level mathematics course in the first term than those in the control group. Similarly, 41% of the students placed higher and 6% lower with the multiple measures in English than with ACCUPLACER. Students in the control test were 12% more likely to enroll in and pass a college-level English course than those in the control group.

Because of the mounting evidence of the superiority of multiple-measure placement over the use of single test scores, many colleges and universities are changing placement practices. A recent survey showed that, from 2011 to 2016, the use of multiple-measure placement has increased from 27% to 57% in mathematics, and from 19% to 51% in English in community colleges.
The single-largest challenge for multiple measures that include high school GPA, as noted by several of the Placement Forum representatives, is the timely and efficient access to student transcripts. Frequently, transcripts submitted at the time of application are incomplete as the student is finishing his/her final year of high school. Moreover, when transcripts are submitted electronically there is no fixed format to facilitate the incorporation of the needed information (GPA, particular course grades) into the college’s student information system to be available to a multiple-measures placement algorithm.

The adoption of a new or modified placement algorithm requires the development of materials and comprehensive training for advisors, and a significant commitment of IT time and personnel. As identified in [3], tasks that required IT support to implement a multiple-measures strategy included compiling an historical data set to test the effectiveness of the multiple-measures algorithm, modifying the student information system to facilitate the entry of high school transcript information, implementing the new placement algorithm, developing new/modified placement reports for advisors and students, and testing and debugging the system prior to its use.

Creating and implementing multiple-measures algorithms has been noted as a challenge in each of the major research studies previously mentioned. Both of the projects allotted a year for the creation, testing, and final implementation of the algorithm.
Recommendations

Recommendation 1

Institutions should consider multiple-measure placement within a larger context of helping students identify career paths and majors, and ensuring that students are enrolling in the courses that are appropriate for the students’ desired major.

Recommendation 2

The Ohio Department of Education adopt a uniform electronic transcript for high school students within the state. The transcript should be compatible with college and university student information systems.

Recommendation 3

The institutional research office of each college and university examine the effectiveness of the placement process at least every two years. To facilitate multiple-measure placement, this review should consider high school courses and GPA on performance in the placed college or university courses.

Recommendation 4

Colleges and universities develop a training program for advisors and faculty detailing the placement process, linkage of gateway courses to career pathways and majors, and the impact placement on student persistence and progress.
Recommendation 5

Colleges and universities develop a strategy to inform students of the importance of proper course placement, the placement policies of the institution, methods by which an initial placement may be appealed, and alternatives to standard developmental courses such as intensive review programs and co-requisite remediation.

Recommendation 6

Colleges and universities sponsor regular and formal meetings between advisors and regional high school counselors. These meetings should review curricular pathways, institutional placement policies and expectations for students, and facilitate continuing conversations between high school counselors and college and university advising staff.

Recommendation 7

Colleges and universities sponsor regular and formal meetings between mathematics and English faculty with regional high school faculty to ensure that college entry expectations are understood by the high school faculty.
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