

# Improving **Assessment and Placement** at Your College: A Tool for Institutional Researchers

Many students who enter developmental education do not successfully progress through college. Instead, they get discouraged, delayed, or diverted from their goal of completing a college credential. Of course, many students need developmental education because they are not college ready. But some students are misassigned during the placement process. Some are enrolled in developmental education when they do not need to be; others bypass developmental education despite not being college ready. When many students are misassigned, completion rates for introductory college-level courses are lower than they would be otherwise, which has consequences for students' progression toward a degree.

In this tool, we present a framework for understanding and improving assignment to developmental education. The tool draws on extensive analysis by researchers at CCRC.<sup>1</sup>

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This is part two of CCRC's practitioner packet on improving remedial placement. For an overview on methods used to measure college readiness, see [Improving the Accuracy of Remedial Placement](#) (part one). To learn more about the costs of assessment, see [Calculating the Costs of Remedial Placement Testing](#), part of the CCRC Analytics series.

## How Do Colleges Assign Students to Developmental Education?

To assign students to developmental education, colleges need to decide who is college ready and who is not. This decision requires information about students' ability and preparedness for college-level work and a rule about how to apply that information in making assignments.

Each decision rule involves trade-offs. No rule—nor the information on which it is based—is perfectly accurate; every rule involves errors. Inevitably, some students will be assigned to developmental education when they are in fact college ready, and some students will be assigned to college-level courses when they are in fact not ready. A good decision rule is one that minimizes both types of errors.

## How Likely is Misassignment to Developmental Education?

The conventional decision rule is: Colleges administer a placement test (such as the COMPASS or ACCUPLACER) to students and assign them to developmental education if they score below a cutoff score.

We estimate that this rule generates a substantial number of errors. Based on prediction models for two community college systems, we calculate that between one quarter and one third of tested students are severely misplaced based on their scores on these placement tests. Most of the errors involve underplacement (where students who should be in college-level courses are placed into developmental education) rather than overplacement (where students who should be in developmental education are placed into college-level courses).

By contrast, if assignment were based on a student's high school transcript information (grade point average [GPA] and courses completed), we estimate that there would be fewer errors. Using simulations from the two community college systems (and making an exception for math placement errors in one community college system where improvements would be more modest), the reductions are substantial. Our calculations suggest that out of 100 students tested, 4 to 8 fewer students would be severely misplaced, representing up to a 30 percent reduction in severe errors compared with test-based placements. What is more, in our simulations, GPA accounts for most of the predictive power of high school transcript information.<sup>2</sup> Thus, a simple decision rule that colleges could use instead of administering a traditional entry assessment would be to assign students to developmental education if their high school grade point average (GPA) is below a threshold (such as 2.7 or 3.0).

## What Does Misassignment to Developmental Education Cost?

Misassignment has important efficiency consequences. Assigning students to college courses when they are not prepared reduces pass rates for those courses. Assigning students to developmental education when they are college ready results in wasted expenditures on unnecessary courses and reduced or slower college pass rates (if students are discouraged by their experiences in developmental education).

When students are misassigned, college course completion rates fall, and efficiency decreases across the college. Improving the accuracy of placement will improve college performance because more students will pass their first college-level courses.

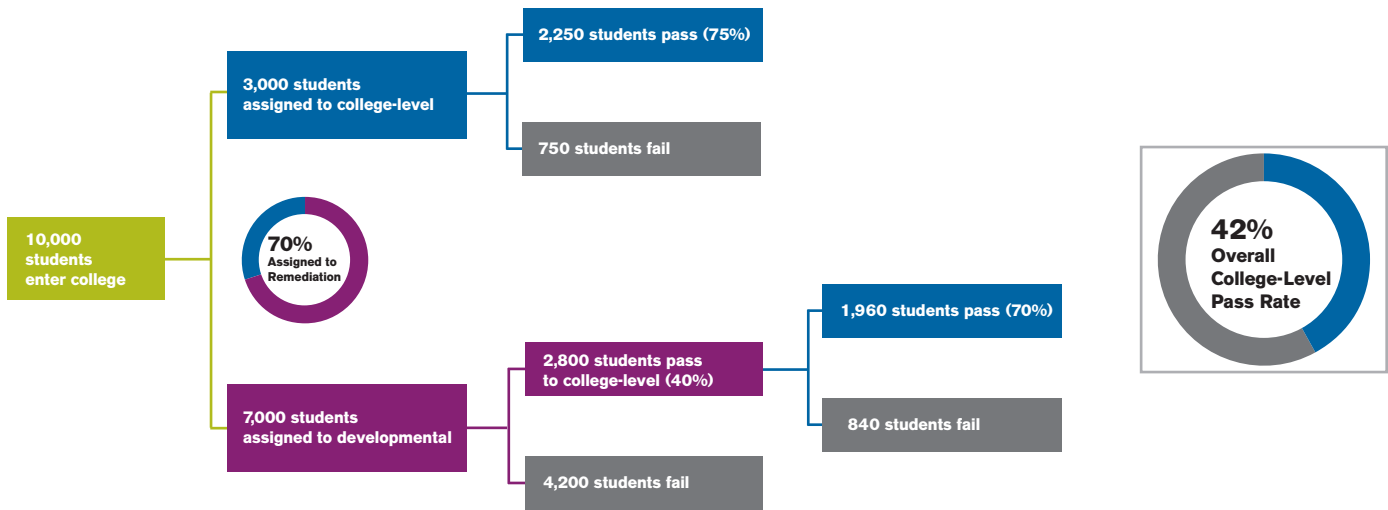
Scenarios 1 and 2 illustrate student progression under the conventional system of developmental placement and under a more accurate placement system. These are simulations and simply demonstrate the links between assignment, course-taking patterns, and completion of the first college-level course. If colleges can make substantial changes that result in more accurate course assignment, it may help improve students' progression toward a degree.

Under the conventional system (scenario 1), many students are assigned to developmental education, and many fail to complete their developmental education course sequence. Ultimately, the result is a low overall pass rate for the first college-level course (42 percent of all entering students).

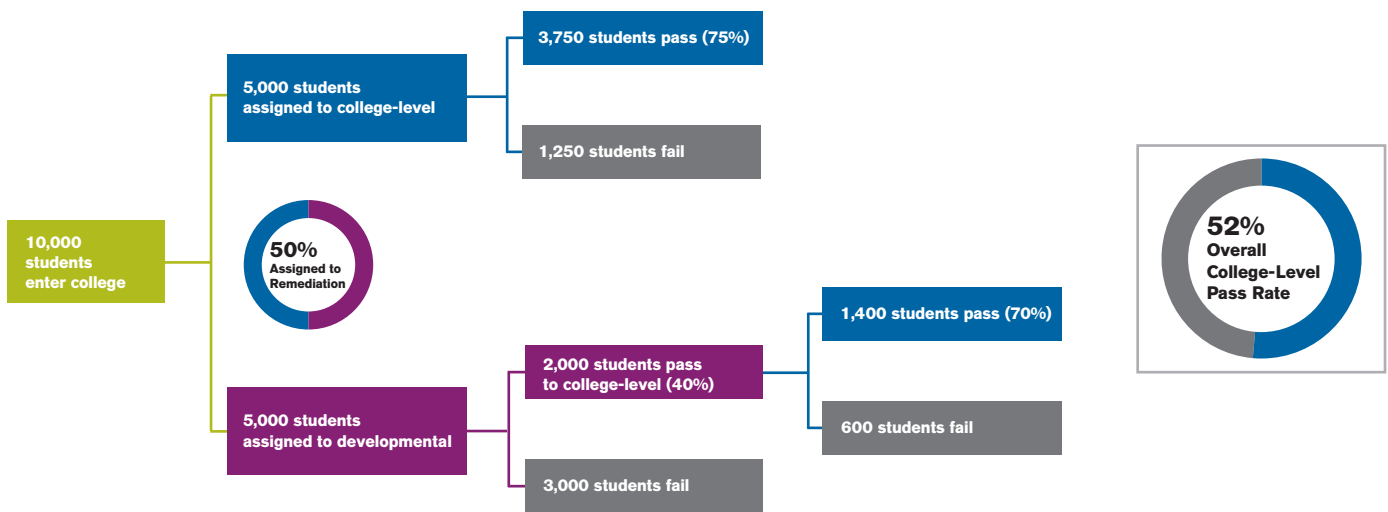
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### Scenario 1: Student Progression Under the Conventional Placement System



### Scenario 2: Student Progression Under a More Accurate Placement System



*Note.* The simulated course-level pass rates are assumed to be the same in both scenarios.

By contrast, scenario 2 shows a more accurate placement system. In this simulation, fewer students are assigned to developmental education, and the overall pass rate for the college-level course is much higher (52 percent). When more appropriately placed students are enrolled directly in the college-level course, a higher proportion of the entering cohort passes that course, and students progress more quickly. College performance is therefore substantially higher.

# Recommendations for Institutional Research

Colleges can use several approaches to determine whether their developmental education assignment process should be modified. These approaches utilize data that most colleges already have on student test scores and high school performance.

## Check Placement Test Validity

Institutional researchers might perform several checks on the validity of their placement tests. These checks can be conducted using data on placement test scores and student-level transcripts (at the college and from high school, if available).

One check would be to see if—for those who passed the placement test—performance in college-level courses is strongly correlated with placement test scores. Similarly, for those who fail the placement test, colleges could check to see if test scores are correlated with performance in developmental education courses. As an approximation for these associations, low correlations are below .3, moderate correlations are .3–.5, and high correlations are above .5. Low correlations would suggest that the assignment rule is not very accurate.

Also, researchers might check to see if these correlations vary significantly by college, by developmental education subject, or by student characteristics. Large variations would indicate that the placement tests are not equally accurate for all students. This would also be a red flag as to the validity of the placement test.

A second check would be to examine the association between a student's high school GPA and college performance. If this correlation is strong, then high school GPA might be a good predictor of college GPA (and college credit accumulation). Evidence from one CCRC study suggests that a student's high school GPA is approximately 0.3–0.5 points above his or her college GPA (so a B+ high school student becomes a B college student).<sup>3</sup>

A third check would be to examine the correlation between placement test scores and high school GPAs. If the correlation is very strong, it may not matter which piece of information is used to assign students. However, if many students with high GPAs fail the placement test, then the information used in the decision rule will matter; students would end up on very different pathways under the two decision rules (that use either placement test scores or GPAs), and enrollment rates for developmental education would differ.

## Use More Accurate and Additional Information

The only surefire way to minimize the trade-off in errors is to improve the accuracy of the decision rule. The primary way to do this is to obtain additional information that has explanatory power. The more accurate that information, the more it will improve the validity of the decision rule.

Colleges might consider supplementing placement test scores with information about a student's high school performance. (For some colleges, the high school information may be sufficient, with no placement test needed.) Transcripts include a lot of information about how a student performed in high school (e.g., grades, course loads, honors courses taken). However, as we have mentioned, our

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prior analyses suggest that while other elements from the high school transcript—such as within-subject GPAs and/or number of units completed in various subjects—may have some additional predictive value, a student’s overall high school GPA is the most important single element from his or her high school transcript. (In other colleges and college systems, standardized test scores, such as ACT or SAT scores, or records of students’ course loads may also be informative.)

Colleges might therefore base their decision rule on a weighted average of a student’s placement test score and high school GPA. The weights could be derived by looking at how prior cohorts of developmental education students performed in college-level courses.

Colleges might also administer additional tests, particularly to students who are close to the threshold for college readiness. Ideally, these tests would identify attributes of college readiness that placement tests and GPA do not, such as student learning strategies, attitudes, study skills, and learning styles; they would then supplement the information on cognitive skills gathered from the placement tests and GPA. However, few additional tests have been validated as indicators of college success. The risk is that these tests will simply add noise to the prediction.

## Consider Other Options for Improving Placement Accuracy

In addition to directly improving the accuracy of entry assessments, colleges may wish to consider other steps.

### Exempt certain students from taking placement tests.

One way to avoid having college-ready students fail an entry assessment and be assigned to unnecessary developmental education courses is to exempt them from taking the test. Test exemptions may be useful for students who are obviously college ready based on ACT or SAT scores, for example. This group might also include students with high school GPAs above a certain threshold. A typical community college student has a high school GPA of around 2.7 (B minus). Students with GPAs of 3.0 or above are much less likely to need developmental education. Thus, using high school GPA in an exemption rule may be an efficient way to reduce underplacement.

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### Retest students more often.

Students are less likely to be misassigned if they are tested more regularly. Colleges might consider retesting students who are close to the college readiness threshold or who have high GPAs but low placement test scores. Students enrolled in developmental education sequences might be given college readiness assessments midway through their studies. Even if a placement test is not very accurate, retesting students can improve its accuracy.

### Provide a short refresher workshop.

Students have often not studied math or English in the months before placement testing. Some colleges offer brief refresher workshops before testing to help students remember material that they learned in the past.

## **Resources for Validating Placement Tests**

All these approaches will require additional resources. For the validity checks alone, additional time (and staff) will be needed. Two other costs are important to bear in mind. One is that some colleges may not have all the requisite data or may not have collated and cleaned the data for analysis; preparing for the analysis will add to time and staff costs. Another cost is the student time required for different tests and rules to be administered.

However, in other research at CCRC, we have found that expenditures on remedial placement testing are quite low; it may be possible to increase the amount allocated to budgets for developmental education assignment.<sup>4</sup> Moreover, this resource cost should be compared against the loss in efficiency and performance from misassignment of students into developmental education.

## Endnotes

1. This tool is based primarily on research analyses by Scott-Clayton, Crosta, and Belfield (2014) and Belfield and Crosta (2012). For related CCRC analyses on assessment and placement, see <http://ccrc.tc.columbia.edu/Assessment-Placement-and-Progression-of-Developmental-Students.html>. For research on the use of multiple measures for placement in California, see <http://www.rpgroup.org/projects/multiple-measures-assessment-project>.
2. In our simulations, GPA accounts for most of the predictive power of high school transcript information. See Belfield and Crosta (2012).
3. See Belfield and Crosta (2012).
4. For estimates of spending on assignment to developmental education, see Rodríguez, Bowden, Belfield, and Scott-Clayton (2014, 2015).

## Sources

Belfield, C. R., & Crosta, P. M. (2012). *Predicting success in college: The importance of placement tests and high school transcripts* (CCRC Working Paper No. 42). New York, NY: Columbia University, Teachers College, Community College Research Center.

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**Community College Research Center**  
**Teachers College, Columbia University**  
525 West 120th Street, Box 174  
New York, New York 10027  
Tel: 212.678.3091 Fax: 212.678.3699  
[ccrc@columbia.edu](mailto:ccrc@columbia.edu)  
<http://ccrc.tc.columbia.edu>