CCRC RESEARCH BRIEF
Number 57 | December 2013

Why Students Do Not Prepare for Math Placement Exams: Student Perspectives

By Maggie P. Fay, Susan Bickerstaff, and Michelle Hodara

In response to the poor educational outcomes of students referred to developmental education, a number of states have redesigned their developmental curriculum and course structures to accelerate students' progression through developmental requirements (Hodara, Jaggars, & Karp, 2012). Developmental education reforms often include the design and introduction of new entry assessments (placement exams) that are aligned to the college-level curriculum and intended to identify the skills and knowledge students have mastered and those they need to develop (Hodara et al., 2012). New customized assessments aim to place students into coursework more accurately than a standardized placement exam would, thus improving the likelihood that students will take only the courses they need to be prepared for introductory coursework in their degree programs.

Despite an increased focus on the instruments used during the assessment and placement process (Belfield & Crosta, 2012; Scott-Clayton, 2012), little attention has been devoted to how community college students experience assessment and placement (Venezia, Bracco, & Nodine, 2010). In this research brief, we use interview and survey data to illuminate student experiences with and perspectives on the math assessment and placement process at four community colleges in an eastern state system implementing new customized placement exams.

The findings presented in this brief are drawn from surveys completed by 122 students enrolled at four community colleges and from seven student focus groups with a total of 34 students at those same colleges. All student participants were enrolled in developmental math in fall 2012, when the data were collected.

Results from our analysis suggest that many students who go on to enroll in developmental math are unlikely to prepare for the math placement exam, although most students know ahead of time that they are required to take the exam and many colleges make test preparation materials available. Lack of preparation may undermine students' exam performance and negatively affect the accuracy of their placement. We identify four interconnected reasons why students tend to not prepare for the exam: (1) misperceptions about the stakes of the assessment and placement process, (2) lack of knowledge about preparation materials, (3) misunderstandings about why and how to prepare for a college placement exam, and (4) a deep lack of math confidence.

Results from our analysis suggest that many students who go on to enroll in developmental math are unlikely to prepare for the math placement exam.

In what follows, we present findings from our research. We argue that reform to assessment instruments and placement policies alone will not change students' approach to and experiences with the assessment process. Without additional attention to improving students' awareness of the exam and its implications, strengthening their preparation for the exam, and building students' math confidence, colleges are unlikely to reap all of the potential benefits of redesigning and customizing their assessment instruments.

Students' Placement Exam Knowledge and Preparation

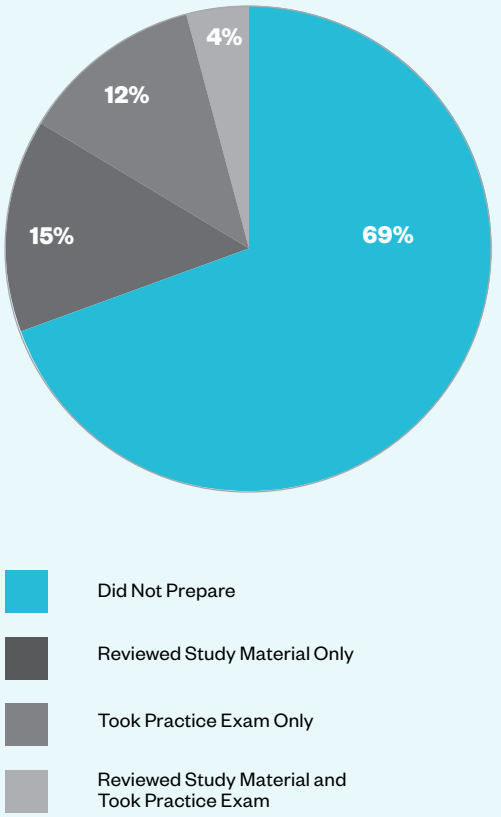
Survey responses show that the majority of our sample of developmental math students knew in advance that they would have to take a math placement exam: 69 percent of these students indicated they learned about the placement exam prior to the day they took it. Information from focus group participants suggests that those students who took the placement exam the same day they learned about it (31 percent of the sample) did so because late registration or busy schedules prevented them from returning to campus on a second day. However, some students reported that they could have delayed taking the exam in order to prepare but chose not to, for reasons we describe below.

All colleges in our sample made test preparation materials available to students, but the accessibility and quality of materials varied. Most commonly, testing centers distributed brochures or one-page handouts detailing testing center hours and policies that also included a link to an online practice exam. One college offered an exam preparation course, although at the time of data collection the course was not being offered due to staffing limitations. Two colleges created exam study guides and offered testing resources in their libraries. At only one college did staff report that encouraging students to take a practice exam was part of their student intake policy. In general, while exam preparation resources were made available, they were not proactively advertised to students. As shown in Figure 1, most students in the sample reported that they did not prepare for the placement exam.

Reasons for Students' Lack of Preparation

Student focus group responses help to explain why most developmental math students did not prepare for the placement exam even when they knew they would be required to take it as part of the admissions process.

Figure 1. Placement Exam Preparation Among Developmental Math Students



Misperceptions About the Stakes of the Exam

Students reported a wide range of views regarding the consequences of the placement process. Although most students reported knowing that the exam was intended for "placement," many students had only a cursory understanding of what placement entails.

Students' misunderstandings stemmed primarily from a lack of knowledge about the nature and purpose of developmental education. As one student explained, "I didn't know what developmental math was or anything." She went on to describe when and how she realized the implications of the exam: "When it clicked for me was once I registered for my classes, because they explained it." This student and others in our sample only realized that the placement process could result in multiple semesters of not-for-college-credit math coursework *after* they took the exam.

Moreover, some students reported that if they had understood the consequences of poor performance on the placement exam, they would have approached placement testing differently. One focus group participant said, "If I would have known that we had developmental classes, I would have split my tests up [taken the subject tests on different days] and paid a lot more attention towards it, if I had known that I wasn't qualifying to take [college-level] math classes."

Students reported that if they had understood the consequences of poor performance on the placement exam, they would have approached placement testing differently.

Lack of Knowledge About Preparation Materials

The most common reason that students reported for not preparing for the exam was that they did not know about their college's preparation materials. Sixty-four percent of students in the sample were reportedly unaware of these materials; this figure was even higher (80 percent) for students who took the exam on the day they found out about it. This problem was more prevalent among nontraditional students. Fifty-eight percent of students between the ages of 18 and 23 did not know about preparation materials, compared with 73 percent of students over age 23. Because students did not utilize these resources, they knew little about what to expect in terms of the exam format or testing center policies. For example, several students reported their surprise that calculators were not allowed on the exam. This lack of knowledge interfered with students' ability to adequately prepare.

Misunderstandings About How to Prepare

Many students—including some who knew about the preparation materials—indicated that they did not know *how* to study for the exam. Some students reported feeling overwhelmed at the prospect of studying a broad number of math topics, or as one person described it, "a lifetime of math." Another student explained, "I didn't know exactly where to start." When probed, most students were unable to articulate how exactly they would have studied had they elected to do so. Even students with a general awareness of the exam's focus described uncertainty about the best way to prepare. For example, a student reported that the college provided a list of content areas covered on the exam, "but it didn't tell you exactly how to study for it and what to expect." This comment and others suggest that students need additional guidance on strategies to prepare for a math exam that covers such a wide range of topics.

Finally, some students we spoke with indicated that studying for the placement exam was unnecessary or even inappropriate. This point of view was apparently due in part to messages students reported receiving from testing center staff. For example, one student said, "It wasn't anything that I was told to be prepared for. They said, 'We need to see where you're at.'" This was a common theme in our survey and focus group data—students interpreted staff members' comments to mean that preparation was unwarranted. Interestingly, it appears that staff members' attempts to allay students' anxiety about placement testing (i.e., by telling students not to worry about the exam) contributed to students' tendency not to prepare and may have served to understate the stakes of the exam.

A Deep Lack of Math Confidence

A related critical factor that influenced student preparation behaviors was students' lack of math confidence. Some students reported apprehension about taking college-level math and worried about placing into a course that would be too difficult. These students described satisfaction with their placement into "refresher" courses. One nontraditional student said, "So I knew me; yeah, I needed the lowest math class that you have." A few students reported that they wished that they had placed into an even lower level of

developmental math: "I feel like I need to start at the beginning, wherever the beginning is."

This desire on the part of students lacking academic confidence to place into courses that are not overly challenging influenced their decision to not prepare for the exam. Many reported that they did not want to game the system. For example, one student asked, "What if you crammed for the test and then forgot it all? What if you did really well and then the course you're in was too hard?" These students believed that preparation could land them in courses beyond their academic abilities, and previous research suggests that some faculty may share this perspective (Jaggars & Hodara, 2011). While this study does not provide evidence on the accuracy of these students' self-appraisals, our concern is that such students may not recognize the consequences of aiming for a conservative placement—more time spent in developmental courses practicing skills they may already have partially mastered.

Consequences for Students Who Do Not Prepare

The decision to not prepare raises a fundamental question concerning exam preparation and performance: If students have little knowledge of the content or format of the exam, is their performance a true indication of their math skills? After all, many students who take math placement exams have not used the full range of skills they have been exposed to in a long while, so refamiliarization may be beneficial. What is more, prior research shows the prevalence of student underplacement when colleges use standardized placement exams: In one urban community college system, it was estimated that one quarter of students who were placed into developmental math could have succeeded in college-level math (Scott-Clayton, 2012).

Previous research also suggests that the limited predictive validity of placement exams may be related not only to poor exam alignment with college-level curriculum but also to insufficient student knowledge about and preparation for these exams (Hodara, Jaggars, & Karp, 2012). While there is limited research on the value of placement test preparation in raising students' test scores (Briggs, 2009), it is reasonable to expect that preparation that includes a review of the format (with sample questions) and a review of the math concepts to be covered (which many students will have encountered previously) would result in scores that better reflect students' math knowledge and skills.

Implications for Improvement and Reform

The challenges highlighted in this research brief suggest that redesigned assessment instruments need to be married with practices and policies that focus on building students' awareness of the substance and implications of placement exams and on appropriate exam preparation measures. Ideally, the assessment and placement processes in community colleges would rely less on placement exams as the sole determinant of students' placement, and reforms would introduce more comprehensive assessments of students' college readiness using additional measures such as students' high school GPA (Scott-Clayton, Crosta, & Belfield, 2012). But as long as most systems rely exclusively on placement exams to determine student placements, it is critical that students have the knowledge and tools needed to perform as well as they can on those exams so that their scores accurately reflect their content knowledge and skills.

To help students prepare for placement exams, colleges may want to consider both working to improve communication about the assessment and placement process and offering robust preparation materials more proactively. In making these improvements, colleges should bear in mind that students' lack of confidence and low expectations of their academic performance in math may make them less likely to take advantage of test preparation opportunities. Therefore, testing center materials and staff members should communicate the message that thoughtful exam preparation may generate more accurate placement.

Recommendations

Enhance efforts to provide information about the assessment and placement process to students.

- Advertise testing policies that will benefit test takers, including opportunities to retest, rules regarding the use of calculators, and the ability to take subject tests (English and mathematics) on separate days.
- Send important messages to students via multiple media (e.g., email, text messages, and social media) and venues (e.g., high schools, community–based organizations, and religious institutions), keeping in mind that nontraditional students may be less likely to learn about the exam.

Actively convey the message that exam preparation is appropriate in testing center communications.

- Train testing center staff to consistently communicate to students the stakes of the placement exam and the importance of reviewing the exam format and content.
- Emphasize in materials that students who have had a long gap in their math education will particularly benefit from familiarizing themselves with topics that they have learned in the past.

Design study materials that include guidance about *how* to prepare for the exam.

- Include authentic placement exam content (i.e., practice problems) rather than merely a list of topics.
- Given the breadth of topics covered by many placement exams, highlight preparation strategies that are efficient and feel manageable to students. Emphasize, for example, that students should review topics with which they are familiar and avoid attempting to teach themselves new content.

Consider implementing additional policies that encourage students to familiarize themselves with exam content and format *before* testing. Examples include:

- Require or encourage students to take at least one practice test before taking the placement exam.
- Disallow or discourage placement exam testing on the same day that students first learn about the assessment.
- Provide testing workshops, boot camps, or other short-term interventions to provide guided exam review.

References

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.

Briggs, C. D. (2009). *Preparation for college admission exams.* Arlington, VA: National Association for College Admissions Counseling.

Hodara, M., Jaggars, S. S., & Karp, M. M. (2012). *Improving developmental education assessment and placement: Lessons from community colleges across the country* (CCRC Working Paper No. 51). New York, NY: Columbia University, Teachers College, Community College Research Center.

Jaggars, S. S., & Hodara, M. (2011). *The opposing forces that shape developmental education: Assessment, placement, and progressions at CUNY community colleges* (CCRC Working Paper No. 36). New York, NY: Columbia University, Teachers College, Community College Research Center.

Scott-Clayton, J. (2012). *Do high-stakes exams predict college success?* (CCRC Working Paper No. 41). New York, NY: Columbia University, Teachers College, Community College Research Center.

Scott-Clayton, J., Crosta, P. M., & Belfield, C. R. (2012). *Improving the targeting of treatment: Evidence from college remediation* (NBER Working Paper No. 18457). Cambridge, MA: National Bureau of Economic Research.

Venezia, A., Bracco, K. R., & Nodine, T. (2010). *One-shot deal? Students' perceptions of assessment and course placement in California's community colleges*. SanFrancisco, CA: WestEd.

This brief is a product of CCRC's Analysis of Statewide Developmental Education Reform (ASDER) research project, which is funded by the Bill & Melinda Gates Foundation.

CCRC COMMUNITY COLLEGE RESEARCH CENTER

TEACHERS COLLEGE, COLUMBIA UNIVERSITY

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
http://ccrc.tc.columbia.edu