

*Addressing Academic Underpreparedness in Service of
College Completion*

NIKKI EDGECOMBE, PHD

SUSAN BICKERSTAFF, PHD

Community College Research Center, Teachers College, Columbia University

Volume 6, Issue 1, pp. 75-83 (2018)

To cite this article: Edgecombe, N., & Bickerstaff, S. (2018). Addressing academic underpreparedness in service of college completion. *Texas Education Review*, 6(1), 75-83. doi:10.15781/T27941B74

Addressing Academic Underpreparedness in Service of College Completion

NIKKI EDGECOMBE, PHD, and SUSAN BICKERSTAFF, PHD
Community College Research Center, Teachers College, Columbia University

Historically, the majority of community college students who are referred to developmental education do not complete their remedial requirements (Bailey, Jeong, & Cho, 2010; Mejia, Rodriguez, & Johnson, 2016). This suggests that for many students the customary form of developmental education serves as an obstacle—though hardly the only one—to college completion. Traditionally, students are referred to different levels of pre-college remedial coursework in reading, writing, and/or math based on their scores on a standardized placement test. Indeed, some students are required to take multiple semesters of remedial coursework in one subject area before being deemed ready to enroll in their first college-level courses in English and math. Efforts to improve developmental education in recent years have been aimed at accelerating the pace at which students enroll in and complete college-level coursework and at improving assessment systems to better place students according to their academic needs (Bailey & Jaggars, 2016). Few reforms, however, have been based on a broader interrogation of our understanding of academic underpreparedness and whether its manifestations require more radically different solutions than improvements on the conventional forms of developmental education and placement.

We posit that a reframing of academic preparedness—which is typically conceived as a checklist of skills in literacy and math—is warranted. The current policy focus on developmental education and placement, while certainly justified, may be missing the forest for the trees; it may be understating the complexity of the problem and thus generating insufficient responses. One potential sign of this circumstance is that developmental education reform activities remain, by and large, separate from other institutional improvement initiatives in ways that could serve to undermine the success of all of them. Yet any proposed reframing is made harder by the fact that there is not a consensus on what it means to be “college ready,” a concept that is relative and that certainly means something different at selective colleges than it does at open-access institutions. Additionally, across all sectors—primary, secondary, and postsecondary—our education systems have struggled to remediate (Dougherty & Fleming, 2012). In general, we lack replicable and scalable models of helping students who have fallen behind academically to catch up, and this challenge is heightened when the threshold that denotes academic preparedness in college is poorly defined.

Developmental Education Reform Landscape

The recognition that multi-course, multi-semester developmental education sequences undermine student success was a watershed moment for community colleges. The problem is not simply that some students struggle in any given course, but that there are multiple opportunities for students to exit traditional remedial course sequences. Hern (2010) described the phenomenon as exponential attrition: “As students fall away at each level, the pool of continuing students gets smaller and smaller until only a fraction of the original group remains to complete the sequence” (p. 2). Exponential attrition allows that developmental education courses may, in fact, be doing good for many students but holds that offering a series of such courses tends to negate their potential benefit.

In response, reform-minded practitioners have begun to modify approaches to developmental education. The alternatives take a variety of forms; they often involve the shortening of a sequence by eliminating and consolidating courses, and students who enroll in the resultant developmental course sometimes take associated college-level courses in the same term (Edgcombe, 2011; Hern, 2012). For example, one of the most popular current approaches allows developmentally

placed students to enroll directly in the introductory college-level course in English or math while co-enrolling in a corequisite support course to help fill gaps in students' knowledge and skills (CCA, 2016). Course consolidation has also triggered conversations about what content is being taught and when it is being taught, and that has in turn generated significant curricular revisions. In English, this has come in the form of integrated reading and writing courses (Bickerstaff & Raufman, 2017; Saxton, 2016); in mathematics, colleges have developed alternative developmental requirements tailored to skills in quantitative reasoning and statistics rather than algebra, which are designed for students in programs of study that do not require college algebra (Clyburn, 2013; Cullinane & Treisman, 2010).

Concurrent with these changes to course structure and curriculum are reforms to the policies and assessment measures that determine students' referral to developmental education in the first place. Fewer colleges are now relying solely on standardized assessment instruments, and more are moving to alternative or multiple measures for placement, including the use of grade point average or other high school transcript data, noncognitive assessments, or directed self-placement (Barnett & Reddy, 2017).

Descriptive and quasi-experimental evidence of the benefits of the corequisite developmental model continues to grow (Cho, Kopko, Jenkins, & Jaggars, 2012; Denley, 2016). And rigorous examinations of alternative developmental math pathways and multiple measures for placement are underway (Logue, Watanabe-Rose & Douglas, 2016; Rutschow, Diamond, & Serna-Wallender, 2017; Willett et al., 2015). The ongoing research provides important information on the effects of particular models. It is also important to recognize that in conjunction with efforts to identify and address other obstacles to college completion, the field is moving toward holistic perspectives on comprehensive reform, which have the potential to help reshape our institutions of higher education in constructive ways (Bailey, Jaggars, & Jenkins, 2015; Maxell & Person, 2016).

Limitations of Developmental Education Reforms

Despite progress in reshaping developmental education offerings and placement, a growing body of evidence suggests that most reforms focused solely on developmental education do not generate significantly higher completion rates (Edgecombe, 2016; Edgecombe, Cormier, Bickerstaff, & Barragan, 2013). Research indicates that these reforms are correlated with significant improvement in developmental course and sequence completion, introductory college-level math and English completion, and, in some cases, short- and medium-term persistence (Cho et al., 2012; Hoang, Huang, Sulcer, & Yesilyurt, 2017). However, few studies of reforms to developmental education have shown statistically significant impacts on college completion (Edgecombe, Jaggars, Xu, & Barragan, 2014), and those that do tend to show gains of just a few percentage points. Despite the gains that students make in their skills and learning in any individual course, these results suggest that the overall structure of developmental education, even under a reformed model, is neither *sustained* nor *robust* enough to dramatically improve students' long-term academic outcomes.

Our current system aims to swiftly bolster the skills of new college students, many of whom have received inadequate primary and secondary school instruction or lost knowledge and skills due to time away from formal education. While it is reasonable to expect preparatory academic work to improve the likelihood that students will be successful in introductory courses, the frontloaded approach tends to decontextualize the knowledge and skills taught in remedial courses from other courses in which they are needed (Grubb & Gabriner, 2013) and can lead to misalignments in expectations and outcomes between college-course and developmental levels (Armstrong & Stahl, 2017). This decontextualization is problematic: it presumes a highly linear trajectory to learning that is not supported by cognitive science and that exacerbates well-documented difficulties students have in

transferring and applying previously learned knowledge and skills in new contexts (Bransford, Brown, & Cocking, 2000).

Reform approaches have primarily focused on to reducing the length of the developmental sequence. Fewer explicitly seek to contextualize instruction, as the implications of this change for curriculum and pedagogy are more profound (Hern & Snell, 2013). Those that do contextualize developmental support, like some versions of the corequisite model, for example, typically do so within introductory or “gateway” English and math courses.

We typically measure the success of developmental reforms based on the one-year completion rates of these gateway courses, a laudable goal consistent with the notion of academic momentum—that earning more college credits early on may increase the likelihood of college completion (Attewell & Monaghan, 2016; Jenkins & Bailey, 2017). However, a focus on the completion of introductory English and math tends to position academic underpreparedness as something wholly addressed at the start of students’ college lives through developmental programs. We argue that academic preparedness must be addressed throughout the student college experience and across the myriad of disciplines students will encounter.

A Path to Completion for the Academically Underprepared

If college completion is our goal, how should we think about addressing academic underpreparedness? Underpreparedness manifests in a variety of ways, even among students deemed college-ready by our admissions standards and placement processes. Therefore, it may be unwise to segregate most academic support into developmental education programming. We present three strategies that draw on understandings garnered from developmental education reform as well as from other institutional improvement initiatives currently underway.

Structure Remediation in Ways That Build Academic Momentum

Traditional developmental education is well-intentioned. But the preponderance of evidence indicates that the academic momentum of a large proportion of students who are referred to it is too often derailed. In response, we need to identify and remove obstacles to academic momentum that arise even within our reform initiatives. To do so, it will be necessary to direct our approaches in ways that whenever possible *address the gaps in students’ knowledge and skills within college-level coursework*. Models like corequisite remediation signal a start to such an approach, but they are often erroneously presumed to be able to eradicate most of students’ remedial needs. More accurately, they help students demonstrate proficiency on the learning objectives of the associated introductory college-level course and likely leave other areas of academic weakness at least partially unaddressed. Allowing more students with academic weaknesses into college-level courses will force our hands in potentially productive ways by prompting a closer examination of curriculum, pedagogy, and academic supports—all of which warrant strengthening according to international comparisons of U.S. adults’ literacy and numeracy skills. Such a shift should be designed in ways that more actively engage students in their own learning (Hiebert & Grouws, 2014; Kember & Gow, 1994).

Another way to address academic underpreparedness without stymieing academic momentum is to *utilize intensive and focused approaches for students with more severe needs that are bridged to academic programs*. Underlying this strategy is the recognition that there are some students whose academic and nonacademic preparedness is quite weak. While it is admittedly difficult to accurately assess the weaknesses of such students, if we do so, there is growing evidence that intensive remedial programs, in which only reading, writing, and/or math are addressed, may quickly prepare students well enough to successfully engage in college-level coursework. CUNY Start is a one-semester, 25 hour

per week prematriculation program of intensive study of reading, writing, and math that is coupled with other academic and nonacademic supports (Scrivener & Logue, 2016).¹ Early evaluations found that students enrolled in CUNY Start were almost twice as likely to complete a degree within three years than students enrolled in traditional developmental education offerings (Allen, 2015). The curriculum used in CUNY Start classes privileges depth of understanding over breadth of content; it is enacted using a student-centered pedagogical approach intended to help the student develop as a learner. Academic support personnel (i.e., tutors) are positioned inside the CUNY Start classrooms, and instructors and advisors work together with students to troubleshoot nonacademic obstacles. Critically, CUNY Start students register for the next term while in the program to ensure a smooth transition to the colleges' programs of study.

Reposition Academic Supports Closer to the Classroom for All Courses

No single course or sequence of courses is likely to fully address all dimensions of academic underpreparedness. Remedying gaps in knowledge and skills in pursuit of college completion is therefore an ongoing responsibility that entails strengthening curriculum and teaching, as discussed previously, and positioning academic support resources, such as tutoring and learning supports, closer to students. Developmental education advocates have long argued for more robust academic supports to facilitate student success both within and beyond their introductory college-level courses (Boylan, 1999; Roueche & Roueche, 1999). This repositioning is essential for introductory courses—which have historically served to sort students out of majors and out of college—and advanced courses that are critical preparation for courses in a major in the final two years of a baccalaureate program. It entails embedding tutors, teaching assistants, and proven technology-based resources in classes to provide just-in-time remediation and other learning supports and making these resources easily available to students when and where they need them. Importantly, this shift has the potential to demystify academic supports and make their use normative—an academic behavior expected of all students. Research suggests that while our traditional model of tutoring centers benefits those students who avail themselves of these resources (Huang, Roche, Kennedy, & Brocato, 2017; Vick, Robles-Piña, Martirosyan, & Kite, 2015), many students do not do so, indicating a need to revisit how these resources are deployed.

Attend to Psychosocial Needs by Building Academic Confidence and a Sense of Belonging

Poor academic performance often reflects students' weak academic skills. But it also may signal a lack of confidence, engagement, and motivation; underdeveloped academic habits and behaviors; and a lack of familiarity with institutional norms and conventions. Student characteristics, such as confidence and motivation, are malleable and heavily influenced by context (Bandura, 1997; Dweck, 2006; Steele & Aronson, 1995), suggesting that colleges can play a substantial role in helping students who do not understand the unwritten rules of navigating college. Colleges must therefore work to “make the implicit explicit” by showing students how adhering to particular norms, habits, and conventions can help them to achieve their personal goals. Moreover, they must teach, nurture, and reward valuable academic behaviors through which academic performance is mediated (Farrington et al., 2012). We cannot presume, for example, that students come to college with the time management and study skills they need to be successful in this phase of their education journey. Nor can we presume that students recognize when and how best to approach an instructor for help or feed-

¹ CUNY Start's part-time program is 12 hours per week and provides instruction and support in either reading and writing or mathematics.

back. Thus, any institution that aspires to increase completion must attend to the full spectrum of psychosocial needs of students that are correlated with academic performance right alongside the more traditional improvements to teaching and learning.

Psychosocial interventions that help students to build constructive dispositions related to college while dispelling destructive ones have gained prominence in recent years. For example, evidence suggests that asking students to read and write a summary of information about how the brain can grow through study and practice (i.e., introducing a “growth mind-set”) can have positive implications for academic performance (Paunesku et al., 2015). Yeager et al. (2016) tested an intervention in which incoming college students completed a brief writing exercise in response to survey results and brief anecdotal stories illustrating that many students initially feel uncertain about their sense of belonging when they enter college. They found positive effects on academic behaviors associated with stronger college outcomes, such as using student support services and forming relationships with others on campus. Although this experiment was conducted with college-ready students, the underlying premise—that it is normal and common to feel uncertain about whether you belong in college—could apply to academically underprepared students hesitant to use academic and nonacademic supports services that are available.

In conjunction with psychosocial development, institutions can help students cultivate beneficial academic behaviors closely tied to their coursework, like effective notetaking and studying techniques. Responsibility for teaching these behaviors has often fallen on developmental educators, and in some cases, they are the focus of first-year experience courses. However, students struggle to understand when and how to apply these competencies across contexts and disciplines, suggesting that, like academic skills themselves, these associated habits and behaviors must be taught and reinforced in context throughout a student’s college experience (Karp et al., 2012).

Conclusions and Implications

Addressing underpreparedness throughout students’ college lives will require an examination and potential redesign of curricula, pedagogy, and academic and nonacademic supports across all departments and course levels. Developmental educators, with their expertise in working with underprepared students, are well-positioned to lead this work. While we argue that the traditional structure of developmental education and current reforms have largely failed to generate material increases in college completion, the principles underlying high quality developmental education—holistic support of students’ academic and nonacademic needs, just-in-time remediation, high-challenge/high-support classroom environments—can and should be exported to other areas of the college. To reframe our understanding of underpreparedness, we must acknowledge that *all* students arrive in higher education with a complex set of strengths and needs. For some students, addressing key weaknesses upon entry to college will facilitate success in introductory college-level courses. But focusing on improving early college outcomes, like gateway course completion, must be done in concert with a broader vision of long-term contextualized supports to facilitate learning and progress toward students’ ultimate postsecondary goals.

NIKKI EDGECOMBE, PHD, is a Senior Research Scientist at the Community College Research Center (CCRC) at Teachers College, Columbia University where she conducts research on developmental education reform, teaching and learning, and educational equity, among other topics. Her recent publications have focused on statewide developmental education reform and minority-serving institutions. Edgecombe holds a PhD in education from the University of Pennsylvania.

SUSAN BICKERSTAFF, PHD, is a Senior Research Associate at the Community College Research Center (CCRC) at Teachers College, Columbia University where she conducts qualitative research on developmental education reform, teaching and learning, faculty learning and engagement, and student experiences at community colleges. Her recent publications focus on how colleges have implemented instructional reforms in developmental mathematics and developmental English. Bickerstaff holds a PhD in education from the University of Pennsylvania.

References

- Allen, D. (2015). *Understanding multiple developmental education pathways for underrepresented student populations: Findings from New York City* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (3729796)
- Armstrong, S. L., & Stahl, N. A. (2017). Communication across the silos and borders: The culture of reading in a community college. *Journal of College Reading and Learning*, 47(2), 99-122.
- Attewell, P., & Monaghan, D. (2016). How many credits should an undergraduate take? *Research in Higher Education*, 57(6), 682-713.
- Bailey, T., & Jaggars, S. S. (2016). *When college students start behind*. The Century Foundation. Retrieved from: <https://tcf.org/content/report/college-students-start-behind/>
- Bailey, T., Jaggars, S. S., & Jenkins, D. (2015). *Redesigning America's community colleges: A clearer path to student success*. Cambridge, MA: Harvard University Press.
- Bailey, T., Jeong, D., & Cho, S. (2010). Referral, enrollment, and completion in developmental education sequences in community colleges. *Economics of Education Review*, 29(2), 255-270.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Barnett, E. A., & Reddy, V. (2017). *College placement strategies: Evolving considerations and practices*. New York, NY: Center for the Analysis of Postsecondary Readiness.
- Bickerstaff, S., & Raufman, J. (2017). *From additive to integrative: Experiences of faculty teaching developmental integrated reading and writing courses* (CCRC Working Paper No. 96). New York, NY: Columbia University, Teachers College, Community College Research Center.
- Boylan, H. R. (1999). Exploring alternatives to remediation. *Journal of Developmental Education*, 22(3), 2-4, 6, 8, 10.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.) (2000). *How people learn: Brain, mind, experience, and school*. Washington DC: National Academies Press.
- Complete College America (CCA). (2016). Corequisite remediation: Spanning the completion divide breakthrough results fulfilling the promise of college access for underprepared students. Indianapolis, IN: Complete College America. Retrieved from <http://ccspanning.wpengine.com/wp-content/uploads/2016/01/CCA-SpanningTheDivide-ExecutiveSummary.pdf>
- Cho, S., Kopko, E., Jenkins, D., & Jaggars, S. S. (2012). *New evidence of success for community college remedial English students: Tracking the outcomes of students in the Accelerated Learning Program (ALP)*. New York, NY: Columbia University, Teachers College, Community College Research Center.
- Clyburn, G. (2013). Improving on the American dream: Mathematics pathways to student success. *Change*, 1-8.
- Cullinane J., & Treisman, U. (2010). Improving developmental mathematics education in community colleges: A prospectus and early progress report on the Statway initiative. An NCPR Working Paper.
- Denley, T. (2016). *Co-requisite remediation full implementation 2015-2016. Technical Brief No. 3*. Nashville, TN: Tennessee Board of Regents. Retrieved from <https://www.tbr.edu/sites/tbr.edu/files/media/2016/12/TBR%20CoRequisite%20Study%20-%20Full%20Implementation%202015-2016.pdf>
- Dougherty, C., & Fleming, S. (2012). *Getting students on track to college and career readiness: How many catch up from far behind? ACT Research Report Series*. Iowa City, IA: ACT.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY: Random House.
- Edgecombe, N. (2016). The redesign of developmental education in Virginia. *New Directions for Community Colleges*, 2016 (176), 35-43.

- Edgecombe, N. (2011). *Accelerating the academic achievement of students referred to developmental education* (CCRC Working Paper No. 30, Assessment of Evidence Series). New York, NY: Columbia University, Teachers College, Community College Research Center.
- Edgecombe, N., Cormier, M. S., Bickerstaff, S., & Barragan, M. (2013). *Strengthening developmental education reforms: Evidence on implementation efforts from the scaling innovation project* (CCRC Working Paper No. 61). New York, NY: Columbia University, Teachers College, Community College Research Center.
- Edgecombe, N., Jaggars, S. S., Xu, D., & Barragan, M. (2014). *Accelerating the integrated instruction of developmental reading and writing at Chabot College*. New York, NY: Columbia University, Teachers College, Community College Research Center.
- Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). *Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review*. Chicago, IL: University of Chicago Consortium on Chicago School Research.
- Grubb, N. (with Gabriner, R.). (2013). *Basic skills education in community colleges: Inside and outside of classrooms*. New York, NY: Routledge.
- Hern, K. (with Snell, M.). (2010). Exponential attrition and the promise of acceleration in developmental English and math. Hayward, CA: Chabot College.
- Hern, K. (2012). Acceleration across California: Shorter pathways in developmental English and math. *Change Magazine*, 44, 60-68.
- Hern, K., & Snell, M. (2013). *Toward a vision of accelerated curriculum and pedagogy: High challenge, high support classrooms for underprepared students*. Oakland, CA: LearningWorks.
- Hiebert, J., & Grouws, D. A. (2014). Which instructional methods are most effective for mathematics? In R. E. Slavin (Ed.), *Proven programs in education: STEM* (pp. 14-17). Corwin Press.
- Hoang, H., Huang, M., Sulcer, B., Yesilyurt, S. (2017). *Carnegie math pathways 2015-2016 impact report: A 5-year review*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.
- Huang, L., Roche, L., Kennedy, E., & Brocato, M. (2017). Using an integrated persistence model to predict college graduation. *International Journal of Higher Education* 6(3), 40-56.
- Jenkins, D., & Bailey, T. (2017). *Early momentum metrics: Why they matter for college improvement* (CCRC Brief No. 65). New York, NY: Columbia University, Teachers College, Community College Research Center.
- Karp, M., Bickerstaff, S., Rucks-Ahidiana, Z., Bork, R., Barragan, M., & Edgecombe, N. (2012). *College 101 courses for applied learning and student success* (CCRC Working Paper No. 49). New York, NY: Columbia University, Teachers College, Community College Research Center.
- Kember, D., & Gow, L. (1994). Orientations to teaching and their effect on the quality of student learning. *Journal of Higher Education*, 65(1), 58-74.
- Logue, A. W., Watanabe-Rose, M., & Douglas, D. (2016). Should students assessed as needing remedial mathematics take college-level quantitative courses instead? A randomized controlled trial. *Educational Evaluation and Policy Analysis*, 38, 578-598.
- Maxwell, N. L. and Person, A. E. (2016), Comprehensive reform for student success. *New Directions for Community Colleges*, 2016 (176), 7-10.
- Meija, M., Rodriguez, O., & Johnson, H. (2016). *Preparing student for success in California's Community Colleges*. San Francisco, CA: Public Policy Institute of California. Retrieved from http://www.ppic.org/content/pubs/report/R_1116MMR.pdf
- Rutschow, E. Z., Diamond, J., & Serna-Wallender, E. (2017). *Math in the real world: Early findings from a study of the Dana Center Mathematics Pathways*. New York, NY: Center for the Analysis of Postsecondary Readiness.

- Scrivener, S., & Logue, A. W. (2016). *Building college readiness before matriculation: A preview of a CUNY Start evaluation*. New York, NY: MDRC.
- Paunesku, D., Walton, G. M., Romero, C., Smith, E., Yeager, D., & Dweck, C. (2015). Mind-set interventions are scalable treatment for academic underachievement. *Psychological Science, 26*(6), 784-793.
- Roueche, J., & Roueche, S. (1999). *High stakes, high performance: Making remedial education work*. Washington, DC: American Association of Community Colleges
- Saxon, D. P., Martirosyan, N. M., & Vick, N. T. (2016). Best practices and challenges in integrating reading and writing: A survey of field professionals, part 1. *Journal of Developmental Education, 39*(2), 34–35.
- Scrivener, S., & Logue, A. W. (2016). *Building college readiness before matriculation: A preview of a CUNY Start evaluation*. New York, NY: MDRC.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*(5), 797–811.
- Vick, N., Robles-Piña, R., Martirosyan, N., & Kite, V. (2015). The effectiveness of tutoring on developmental English grades. *Community College Enterprise 21*(1), 11-26.
- Willett, T., Hayward, C., Nguyen, A., Newell, M., Bahr, P., Hetts, J.,...Duran, D. (2015). *Multiple Measures Assessment Project (MMAP) Spring 2015 Technical Report*. Sacramento, CA: Research and Planning Group for California Community Colleges
- Yeager, D., Walton, G., Brady, S., Akcinar, E., Paunesku, D., Keane, L.,...Dweck, C. (2016). Teaching a lay theory before college narrows achievement gaps at scale. *Proceedings of the National Academy of Sciences, 113*. 201524360. 10.1073/pnas.1524360113.