

Next-Generation Developmental Education Reform: Developing Practices to Reduce Disparities and Improve Outcomes

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To increase the number of students who succeed in college-level math and English, community colleges across the nation have adopted evidence-based approaches to identify students in need of academic support and to accelerate their enrollment in college-level coursework. These reform efforts have yielded successes, including larger numbers of students completing college-level coursework and achieving other longer-term academic milestones. Yet even in reformed contexts, many students are not successfully completing college-level math and English, often called gateway courses, within their first year.

This report explores reasons why some students are left behind and considers strategies for reaching them, with a specific focus on mitigating disparities in outcomes across student subgroups. Drawing on a literature review and a scan of relevant teaching and support practices being implemented in broad-access institutions nationwide, we describe drivers of outcome disparities in reformed developmental education contexts. Then we introduce the Developmental Education Reform Innovation Incubator—a community of practice made up of participants from four community colleges focused on developing, refining, and scaling practitioner-conceived reform practices—and discuss activities undertaken by the four colleges to improve outcomes for students identified as needing greater developmental education support. We briefly describe elements of each college's current approach and identify connections to drivers of outcome disparities. We also discuss an accompanying **inquiry tool** that faculty and administrators at other colleges can use to better understand developmental education concerns at their own institutions and develop practices to improve success for students.

As a result of major reforms to developmental education over the past decade, more incoming college students are completing college-level coursework in their first year. Yet, even in reformed contexts, some students still struggle. This report describes additional reform practices aimed at expanding student success.

The Effects of Three Major Reforms

As a result of major reforms to developmental education over the past decade, more incoming college students are completing college-level coursework in their first year. A 2023 national survey found that substantially more colleges are implementing evidence-based approaches like multiple measures assessment and corequisite courses than in 2016 (Litschwartz et al., 2023). In more than half of states, these efforts are advanced by a systemwide or statewide policy (Whinnery et al., 2025). Research has consistently documented that more students enroll and succeed in college-level math and English in contexts where these reforms are implemented (Cuellar Mejia, 2025; Kopko et al., 2023; Park-Gaghan et al., 2020; Miller et al., 2022). Although most surveyed institutions maintain some prerequisite developmental education courses and may still include standardized tests in their placement systems, the overall increase in adoption of proven developmental education reforms reflects an important achievement for the broad-access postsecondary sector.

Multiple measures assessment, corequisite remediation, and math pathways are regarded as the three developmental education reforms with the strongest evidence base for helping more students access and complete college-level coursework (Bickerstaff et al., 2022). Multiple measures assessment is a reform to course placement procedures. Using indicators of student performance such as high school GPA, coursetaking patterns, and noncognitive assessments rather than standardized test scores alone, it informs placement decisions in ways that reduce underplacement and expand access to college-level math and English courses, while maintaining or improving student success outcomes (Barnett et al., 2020; Cullinan & Biedzio, 2020; Kopko et al., 2023). Corequisite remediation allows students who would benefit from additional support in college-level math and/or English to directly enroll in the college-level course while receiving concurrent, aligned support (Coca et al., 2023; Logue et al., 2019; Miller et al., 2022). Math pathways is an alternative to default enrollment in algebra-based math courses, offering students multiple math sequences that are aligned to different academic and career goals, including sequences in statistics and quantitative reasoning. It is intended both to help students complete math requirements more efficiently and to make math course content more relevant to students' interests and goals (Biedzio & Sepanik, 2022; Schudde & Keisler, 2019; Schudde & Meiselman, 2019).

These reforms have generally yielded improved outcomes overall, but some students are still not successful. In a randomized trial of multiple measures assessment, for example, Kopko and colleagues (2023) found that most students who were affected by the initiative were “bumped up” (i.e., their placement changed from a developmental course to a college-level course) and that these students had, on average, greater success in their first college-level math or English course. But students who were “bumped down” (i.e., their placement changed from a college-level course to a developmental course) had substantially worse outcomes than similar students who did not experience the reform.

Like multiple measures assessment, corequisite course models help many students complete gateway courses more quickly. Corequisite courses have been shown to yield higher gateway pass rates than traditional prerequisite remediation (Ran, 2020). But not all students succeed. For example, in California in fall 2022, only 46% and 53% of corequisite math and English students completed a college-level course in that subject in one term (Hsieh, 2023; Cuellar Mejia et al., 2023). Similarly, in Louisiana in the 2023-24 academic year, just 52% of corequisite math students were able to complete a college-level math course in one year (Yandle, 2024).

Faculty teaching corequisite math and English courses must make choices about how to use the additional instructional time effectively to deliver the most important content and create a learning environment that keeps students motivated, engaged, and on track, which is often difficult (Cho et al., 2025). Faculty teaching such courses have also described challenges inherent in teaching incoming students with a very wide range of prior experiences and skills, as is common in corequisite classrooms (Fay et al., 2024; Strother & Klipple, 2019).

Evidence on math pathways likewise shows that while the reform has produced positive impacts overall on college-level math enrollment and completion, it does not work equally well for all students. For example, Sepanik and Barman (2023) found that while math pathways had a significant positive effect on students who tested two or more levels behind in math, it had a substantial negative effect on students who tested as college-ready or only one level behind.

Despite positive trends and gains due to these popular developmental education reforms for students overall (Coca et al., 2023; Park-Gaghan et al., 2020), rigorous research has also shown that disparities in outcomes by race/ethnicity, gender, and income that were present before reform initiatives took place tend to persist, even as students generally are positively impacted by the reform (Bickerstaff et al., 2022; Schudde & Ryu, 2025). For example, a random assignment study of multiple measures assessment found positive effects on gateway English completion for female, Pell-recipient, and Black students, but those impacts were not large enough to reduce preexisting disparities between gender, Pell status, and race/ethnicity subgroups (Kopko et al., 2023). These findings, consistent across multiple studies, are not unexpected, as few reforms are explicitly designed to remedy differential outcomes by race or other characteristics (Apple, 1988; Brathwaite et al., 2020).

To continue to find ways to increase the number of incoming students who successfully complete college-level math and English, colleges must consider the specific needs and experiences of students who are not yet well served in the reformed developmental education landscape and explore what is contributing to disparities in outcomes. By centering institutional self-inquiry and practitioner expertise, this report invites educators and college staff to examine their context and the experiences of their students and develop additional reforms, with an explicit focus on innovative practices that address barriers that some students continue to face. Leveraging effective practitioner-led innovation will be essential in advancing reforms that not only improve overall outcomes but also reduce gaps that limit some students' postsecondary success.

Drivers of Outcome Disparities

There is a rich body of literature on societal and systemic circumstances that shape students' educational experiences and outcomes (e.g., K-12 funding, discrimination, health inequities, income and wealth disparities, housing instability; see Fitzgerald et al., 2025; Harding et al., 2025; Johnson, 2020; Museus et al., 2015; Rios-Aguilar & Deil-Amen, 2020). While these typically have origins elsewhere and are largely outside the direct control of colleges, their effects on student experiences are in some ways mediated by college practices. A range of related factors at college can positively or negatively affect student experiences, which may in turn have consequences for student outcomes. In the developmental education reform context, states, colleges, and departments have reformed and continue to refine placement policies and the structural design of corequisite courses, with researchers continuing to investigate how

structural variations (e.g., placement threshold, number of corequisite hours, corequisite course modality, mixed-ability or similar-ability student composition in college-level courses, same or different instructors teaching the college-level and corequisite courses) impact student outcomes.

While systemic conditions and structural reform decisions are important, we focus in this report on interconnected factors often present at the classroom and institutional levels that can be changed or influenced to positively impact student learning and success. Drawing on literature that extends beyond the developmental education reform context, we describe factors in various domains—course curriculum, teaching decisions, psychological dimensions of learning, academic supports, and campus culture—that affect student experiences. We emphasize that these domains overlap and interact with each other; factors described in one area may also be present in another. Under each domain, we also cite practical examples of how colleges have introduced additional innovations in a reformed developmental education context to address factors that may drive disparities in outcomes.

Course Curriculum

Course curriculum and instructional materials affect student engagement and learning, which, in turn, influence academic outcomes and disparities. Decontextualized curricula, for example, often rely upon abstract problems that are not connected to contexts that are familiar to many students (Wang et al., 2022). Indeed, a study of students' views of high school science curricula posited that what instructors perceive as students' lack of motivation might be better understood as students not connecting with or resisting content that is not relevant to their lives (Morales-Doyle, 2018). Shultz and colleagues (2024) argue that mathematics has the potential to be “a tool to examine problems with cultural and political relevance to students” (p. 6). Yet they found that mathematics faculty are hesitant to communicate about student identity (especially race and gender) and often hold beliefs that math is culture-free, which poses a potential barrier to implementing culturally relevant pedagogies. Research has explored ways that high-quality and more relevant course curriculum may drive higher student engagement, motivation, and learning (American Mathematical Association of Two-Year Colleges, 2018; Biedzio & Sepanik, 2022; Desimone et al., 2025; Neumann et al., 2013; Perin, 2011).

Literature on culturally relevant curriculum suggests that content that draws on the lived experiences and histories of underserved students and their communities can boost achievement generally (Gay, 2018; Paris, 2012; Ladson-Billings, 1995; Lee, 2007). In addition, contextualized curriculum that connects academic content with real-world contexts is associated with improvements in community college students' math self-efficacy (Wang et al., 2017). Evidence-based reforms like corequisite models and math pathways provide an ideal context for improving curricular relevance. Under the math pathways model, for example, instructors can connect introductory math course curriculum to students' academic and career goals and everyday tasks (Burdman et al., 2018).

Well-designed corequisite support courses in both math and English also attend to when, in their associated college-level curriculum, students need what kind of help. These courses can teach relevant skills and knowledge at the times that they are needed in ways that are personally meaningful to students. In one example, faculty teaching corequisite English courses integrated culturally relevant assignments that allowed “students to practice the writing skills they are learning from a position of knowledge and interest” (Porter, 2023, p. 281). In another example, English faculty assigned multimedia course texts, such as podcasts

focused on contemporary issues like xenophobia and voting rights, that had the added benefit of allowing multilingual corequisite English students to practice pronunciation as they listened to content and read the transcript (Porter, 2023).

Teaching Decisions

Faculty members' teaching decisions—including how they consider course content, how they engage with students, and how they use classroom activities to elicit and build upon students' prior knowledge—shape student learning and academic success and can ameliorate outcome disparities (Pallas et al., 2017). Faculty mindsets impact whether faculty view students as entering their courses without the required skills—thus burdening them with additional work—or whether faculty see themselves as responsible for teaching content that relates to diverse students and helping students access needed supports (Burkander & Duffy, 2026). Decontextualized drill and practice on subskills was a hallmark of multi-course prerequisite developmental course sequences (Grubb, 2012). While many faculty have adopted more engaging, student-centered approaches in reformed contexts, lack of training, time pressures, and implicit beliefs about students' abilities may all contribute to a continued focus on skills practice.

Faculty who engage deeply in student-centered teaching may design classroom activities so that students can put forward their ideas, deliberate with peers about the meaning of concepts, and describe their thinking (Bickerstaff et al., 2022). Several studies have described the implementation and impact of these teaching approaches in introductory math and English courses in multiple contexts: developing students' math problem-solving skills and their understanding of key math concepts (Scrivener et al., 2018; Weiss et al., 2021), teaching student writers how to ask questions to receive helpful feedback in college composition (Baker et al., 2021), providing students with opportunities to apply reading and writing skills to meaningful real-world contexts (Hernández et al., 2025), and using a cognitive apprenticeship model to help students gain proficiency with explicit instruction in reading comprehension and writing accompanied by modeling and scaffolded support (Weiss et al., 2021). Developmental education reformers have also described effective teaching practices for students having difficulty; these include just-in-time guidance and review, low-stakes collaborative practice, and proactive intervention (Hern & Snell, 2013). Faculty can also help students implement and refine their own plans for their learning, including by helping them to enact time management plans, identify resources that support their learning, seek out and obtain help when needed, and use various learning strategies based on the task at hand in the course (Yarnall et al., 2023).

Examples of efforts to improve teaching practices in developmental education contexts also include faculty and staff professional development focused on supporting students' sense of belonging and self-efficacy in corequisite math courses (Purnell & Burdman, 2021) and the scaffolding of academic-related skills, social engagement, and motivation to promote a “pedagogy of preparation” that meets students where they are through instruction, advising, and support services (Brower et al., 2021).

Psychological Dimensions of Learning

Attention to the psychological dimensions of learning is also crucial for supporting student success and addressing outcome gaps. Math anxiety has damaging effects on student self-perceptions of their math competence (Bekdemir, 2010), engagement in the classroom, and motivation to persist through the term (Samuel & Warner, 2021), thus contributing to

educational disparities (Beilock & Maloney, 2015). Fay and colleagues (2013) describe lack of math confidence as one of the reasons that students tend not to prepare for math placement exams. Brathwaite and colleagues (2020) identify stereotype threat and math anxiety as two particular issues that affect student performance in developmental math courses that have not been addressed through structural reforms to developmental education.

In corequisite math courses, promising teaching approaches include attending to students' attitudes toward math and allowing for mistakes in the learning process (Polakoski, 2023). Instructor emphasis on students' beliefs and perceptions about learning can influence students' motivation; faculty can, for example, foster a growth mindset in students, highlight connections between course content and students' lives and interests, and help students feel academically and socially connected and supported (Tibbetts et al., 2022). In college algebra courses, Ndum and colleagues (2018) found that the effort students put into their academic work and their motivation to attend class and participate helped to explain the gender achievement gap between first-year students in which women performed better than men. The study found that when male students were more motivated to attend class, participate, and complete their homework, and when they had more positive views of their academic abilities, the gender gap significantly narrowed.

Academic Supports

Curricular and teaching decisions as well as students' self-perceptions as learners are also highly relevant for academic supports. Student success depends on the quality of academic supports, their alignment to course content and student needs, and students' ability to access those supports. Many colleges struggle to make tutoring and other academic supports accessible to some of the students who may need them most (Ciscell et al., 2016). Students with jobs and family responsibilities, for example, have substantial time constraints that reduce their ability to participate in campus services that are offered only at limited times (Means & Pyne, 2017). In addition, many colleges make only limited efforts to identify which students have a strong need for academic help. To increase students' access to support, some institutions employ embedded tutors who provide real-time academic help in corequisite class sessions (Duffy & Burkander, 2024). Peer mentor and peer tutoring programs also show promise in guiding students on how to connect with faculty and learn in community with peers (Novick et al., 2024). These programs may increase sense of belonging and institutional engagement among both those who are tutored and the tutors themselves, which may in turn disrupt assumptions about students' ability to succeed in college (Herrera & Lanford, 2024) and which may show students that peers with similar backgrounds are persisting and succeeding academically (Long et al., 2025).

Colleges are also making efforts to find and provide academic help to the students who may need it the most. Moorpark College (CA) is experimenting with new models for proactive student outreach and improved alignment of tutoring content and class content (Whittington-Studer & Salas, 2024). Similarly, Middle Georgia State University (GA) has created a student support approach for corequisite math and English courses in which faculty flag students who are not keeping up with course activities each week: Success coaches contact these students to share resources and create a success plan, and coaches then refer the students to either peer mentors or embedded tutors based on their support needs (Mowreader, 2025).

Campus Culture

Finally, campus culture, including perceptions about students among faculty and staff, also plays an important role in influencing student success. Deficit-based perceptions of low-income, first-generation, and minoritized students may shape how colleges design and deliver support services (McNair et al., 2022). A narrow focus on student deficits can be reinforced by implicit biases about the capacity of some learners to engage in challenging coursework. In the developmental education context, Black and Hispanic students often encounter racial stereotypes about preparedness and academic ability, which can affect their placement into college-level courses (Kopko et al., 2022; Maldonado, 2019; Melguizo & Ngo, 2020). Faculty beliefs that many students need standalone prerequisite courses to become ready for college-level coursework can undermine developmental education reform goals and stymie implementation (Ching et al., 2025).

Initial empirical evidence suggests that some indicators in the campus environment, including the degree to which the college community values students' cultural backgrounds and the degree to which students can form meaningful relationships with faculty and staff, are directly and positively associated with academic motivation (Museus & Shiroma, 2022). And research conducted with Indigenous students suggests that tribal colleges and universities foster a stronger sense of belonging, affirmation of students' culture, and community than nontribal colleges and universities (Sanders et al., 2025). Qualitative work (e.g., Garcia, 2017, 2023; Hang & Walsh, 2021; Kiyama et al., 2015) suggests that culturally engaging campus environments might fuel students' academic motivation—by increasing their confidence, positive engagement, and sense of connection to their campuses.

One example for improving campus culture—largely within the classroom—is illustrated in a set of corequisite English design principles developed by two community college faculty members for the Charles A. Dana Center at the University of Texas at Austin. The principles emphasize helping faculty and staff examine biases and practices that negatively impact students, helping faculty validate students' capacities, and encouraging faculty to expand their conceptions of academic writing to include diverse modes of expression (Halstead & Marks, 2022).

Throughout this section, we have examined a number of related factors arising in varied domains that can hinder or bolster student success and influence disparities in outcomes. For practitioners working to refine developmental education reforms, understanding potential drivers of disparities can inform further innovation. By finding opportunities to address these challenges, reformers can work to generate better experiences and outcomes for a wider range of students. Next, we discuss a potential vision for this effort.

Innovation in the Field

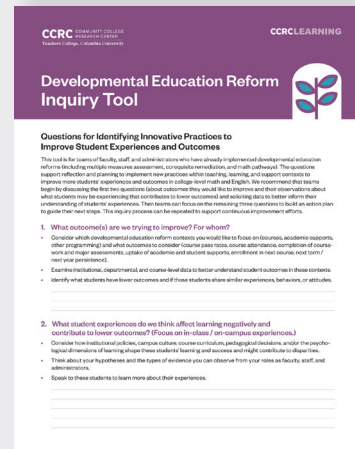
In spring 2025, CCRC convened a community of practice (CoP) called the Developmental Education Reform Innovation Incubator to support peer learning and innovation among community colleges seeking to improve outcomes in reformed developmental education contexts. CCRC worked with state leaders to identify community colleges that had been implementing multiple measures assessment and corequisite remediation in at least one subject for at least two years at scale, had demonstrated improvements in developmental education academic outcomes, and could obtain and analyze institutional data about student outcomes.

We prioritized these criteria to ensure that faculty and staff at participating colleges would be experienced at implementing developmental education reforms, attentive to the challenges that some students still face in reformed contexts, and well positioned to develop and refine innovative teaching and support practices that aim to reduce disparities.

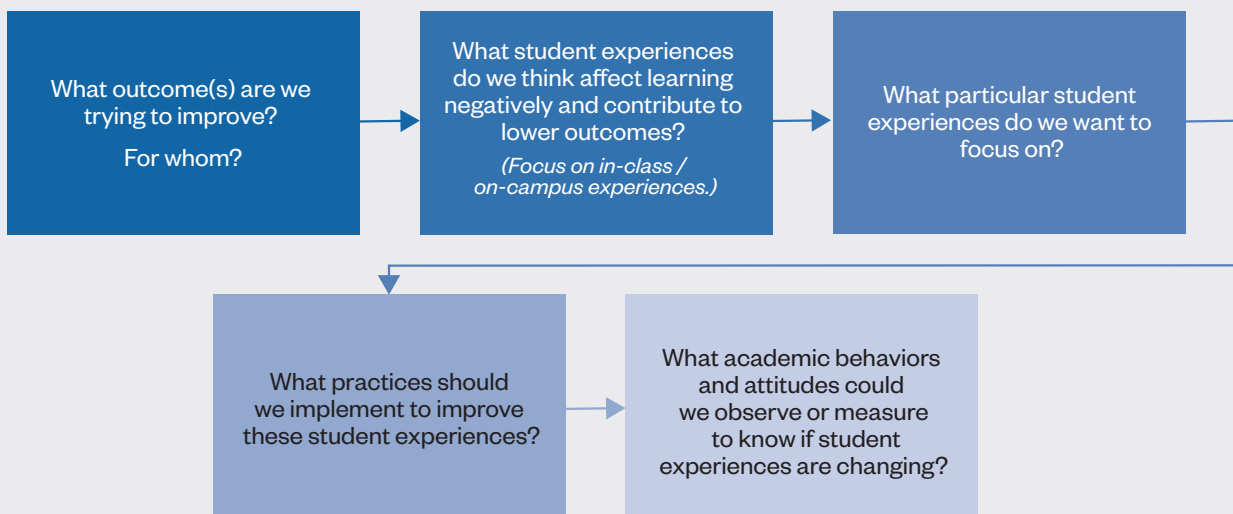
Math and English faculty and administrators at four institutions agreed to participate in the year-long community, which features virtual and in-person convenings and cross-college resource sharing. At the start, each college’s team outlined an action plan and goals designed for their institutional contexts, which included refining teaching approaches, exploring student outcome data, planning and delivering faculty professional development, and strengthening connections with academic and nonacademic supports. As part of the CoP, college teams are using various tools and resources, including the inquiry tool described in the accompanying text box, to explore the needs of students and refine their approaches in community with other reformers and researchers.

An Inquiry Tool for Improving Student Experiences and Outcomes

CCRC researchers have created a [Developmental Education Reform Inquiry Tool](#) to help teams of faculty, staff, and administrators at colleges that have already implemented developmental education reforms to implement new related practices to help students. The tool guides practitioners through a structured five-question reflection process to identify specific student experiences that hinder learning and to develop actionable plans for institutional and classroom-level improvements.



Inquiry Tool Question Sequence



Ideally, the CoP and our research with participating colleges will contribute to the field's knowledge of institutional- and classroom-level efforts to positively influence student learning and success within reformed developmental education contexts. Here we briefly describe elements of each team's current approach, connections to drivers of outcome disparities, and the ways each approach might improve student experiences.

The **Community College of Baltimore County** (CCBC) in Maryland serves 16,400 students (based on fall 2024 data), 39% of whom identify as Black or African American. With over a third of its student population aged 25 years or older, CCBC is a longtime innovator and leader in developmental education reform. Its team joined the CoP with the goal of exploring varied teaching practices used in a corequisite statistics course (in particular, the addition of a non-curricular "learning hour" focused on study skills and time management) and creating interdisciplinary "microlessons" to integrate into gateway math and English course curricula. The college has a contextualized English course (that is also part of a learning community with a student success course), which focuses on the experiences of African American men. It is one example of a curricular innovation intended to improve belonging and connection for students who might better see their own experiences reflected in the course topics and texts. Drawing on collaboration in the CoP, its team is also planning an institutional effort to reinstate professional learning opportunities for CCBC's math and English corequisite faculty, who met regularly before the COVID-19 pandemic. Toward this goal, the team held a large-scale convening of corequisite instructors across both disciplines for focused discussions on student success and gateway momentum.

Volunteer State Community College serves nearly 7,000 students at its campuses in middle Tennessee, with over 40% of students seeking certificates and degrees receiving federal Pell grants. The college transitioned to full-scale implementation of corequisite courses (known as learning support in Tennessee) 10 years ago as part of the Tennessee Board of Regents' statewide developmental education reform. Through participation in the CoP, the college's team of math, English, and reading faculty and administrators are developing professional development resources and approaches to help learning support faculty build their skills and develop mindsets to effectively support students referred to corequisite courses. The programming will build on professional development efforts already underway within each discipline regarding curriculum design and new course models and create opportunities for cross-department learning about faculty experiences working with their students. The programming will also provide guidance for implementing practical teaching strategies that support student well-being and learning, including those focused on growth mindset, purpose, and students' development of a support network at the college. This effort is intended to create a more welcoming and supportive campus culture for the more than 60% of first-time-in-college students at Volunteer State who are referred to corequisite courses.

Arkansas State University Mid-South is a community college enrolling about 1,000 students in West Memphis. The college serves many low-income students; 72% of degree- and certificate-seeking students receive Pell grants. As a small institution with few full-time math and English faculty, Arkansas State University Mid-South is working to develop and package a set of classroom exercises that instructors can use to create a welcoming environment in their corequisite courses, known as structured learning assistance (SLA) in Arkansas. Faculty are implementing teaching innovations intended to address challenges they have observed with student engagement in course activities. These innovations include frequent self-reflection activities that support students' motivation and generate feedback

for instructors, as well as community-building activities to help students get to know one another and find commonalities. For example, English faculty are finding out about student interests and then incorporating those interests into visual prompts for writing exercises. Math faculty are administering frequent self-reflection polls to students to gain insights into their learning experiences and then using the poll data to inform how content will be segmented in subsequent class sessions. The team outfitted SLA classrooms with movable furniture and whiteboards to foster student collaboration and group problem-solving, and faculty are using video messaging features in the college's learning management system to communicate with the whole class and individual students about coursework. In addition, the SLA instructors are working to increase coordination with athletic coaches to support student athletes, and they are incorporating visits by student services personnel to SLA courses.

Hartnell College, a community college in California's Salinas Valley, serves over 11,300 students. It is a Hispanic-Serving Institution; 76% of its students identify as Hispanic/Latino. Hartnell's math faculty, dual enrollment staff, and student support staff joined the CoP to expand Math Academy: a free, out-of-class, weeklong summer and winter program for students taking introductory math in the subsequent term that provides opportunities to build deep relationships with math faculty, peers, learning center tutors, and other college support services staff while participating in community-focused activities and gaining math skills. The college hopes to expand the Math Academy experience to dual enrollment secondary students, formalize Math Academy and subsequent learning and support opportunities as noncredit course offerings, and integrate new culturally relevant activities and assignments within it. The college has conducted internal descriptive research on the program and has found that Math Academy participants are more likely than nonparticipants to visit the college's learning lab in the following term and that program participation is correlated with increased math success rates (Hartnell College, n.d.). This institutional outreach and service effort is intended to build local secondary students' connections to the college and to peers, improve their confidence in math and their sense of belonging in college, increase their access to advanced math courses while in high school, facilitate their subsequent enrollment in and completion of college-level math, and increase their use of math academic support services. In addition, the team is identifying key teaching practices from the existing Math Academy program for use more broadly within math department courses and to share with colleagues developing a similar program in English.

Conclusion

Most successful change efforts in the early developmental education reform movement established explicit structures for planning and implementation, coalitions of like-minded reformers, and partnerships with researchers to help generate evidence. This report describes current grassroots efforts at community colleges that employ many of the same strategies but—informed by the experiences of campus practitioners and current research findings—are geared toward particular challenges facing their corequisite math and English students. As these and other colleges design and implement promising practices, it is important that they develop internal processes—drawing on faculty and staff expertise and institutional research support—to examine their effects. Colleges may also want to seek out connections with external groups, including state student success centers and intermediaries, to gather resources to support and sustain new models.

Students not yet reached by previous reform efforts deserve collective, reflective efforts from practitioners and researchers who approach student challenges with creativity and care. Faculty, staff, and administrators are pivotal in shaping course curriculum, teaching decisions, the psychological dimensions of learning, academic supports, and campus culture to promote more equitable outcomes and success for students. We hope that this report serves as a useful resource for those who want to develop the teaching and support practices needed to help more students succeed in their first college-level courses.

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