

Executive Summary: The CCD story (I/II)

Community College of Denver, as one of 13 colleges in the Colorado Community College System, began implementing holistic reform of Developmental Math Education in Spring 2014, starting with pathways redesign, followed by introduction of default placement into college-level courses and co-requisite labs

- Responding to national evidence that Dev Ed math outcomes could be substantially improved, CCD embraced two phases of reform:
 - In 2014, CCD compressed required Dev Ed math from 4 pre-requisite courses to 2 single semester pathways (i.e. STEM and non-STEM)
 - In 2016, CCD defaulted placement of all CCD math students into college-level pathways courses with co-requisite support labs
- CCD has used some Developmental Education courseware (e.g. NROC), but favors "just in time" instruction, which can be delivered without courseware, to provide support in co-requisite developmental labs

CCD's Dev Ed reform efforts and successes have been supported by broader reforms in Colorado and a number of grants, but have experienced some challenges

- Since 2012, the Colorado Community College System, which includes CCD and 12 other community colleges, has led a number of reform efforts to implement math pathways, co-requisite models, and multiple measures for placement
- Grants from the Department of Labor (Trade Adjustment Assistance Community College Career Training) and Complete College America helped design and catalyze reform
- In 2013, a state statutory change allowed 4-year institutions to offer Supplemental Academic Instruction (SAI), a substitute for Developmental Education; SAI decreased CCD's consortium student enrollment (students enrolled at Metro State University of Denver or UC Denver while taking Dev Ed courses at CCD)
- CCD's environment for change is generally favorable, but faculty and staff bias toward "status quo" (e.g. place students in pre-req courses, direct to College Algebra) and pressure to combat state enrollment declines did pose some challenges

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CCD has seen strong improvements in student outcomes in Dev Ed, with the primary driver being default placement into a co-req model that has just-in-time instruction

- Since 2011, the frequency of enrollment in pre-requisite Dev Ed math courses decreased 55pp (86% to 31%); at the same time, gateway course success improved from 59% to 63% ABC grades
- Most Dev Ed enrollment (~73%) is now in co-req labs; however, students who are slightly older (median age of 26 vs. 20) or slightly lower income (79% vs. 61% Pell eligible) are more likely to still be in pre-requisite courses

Implementation of reforms at scale with limited piloting, especially during staffing changes in enrollment services, led to coordination and change management challenges, but strategic decisions to address challenges improved in subsequent semesters

- Math department standardized curricula to ease burden on adjunct faculty (especially in co-req labs)
- Department leadership garnered faculty buy-in by increasing faculty autonomy in redesigning courses (e.g., faculty encouraged to experiment with pedagogy) and implementing accountability and feedback loops (e.g., meetings where faculty presented outcomes data and proposed next steps)
- Increased communication and cross-collaboration between math department and centralized student advising in Spring 2017 addressed over-enrollment of students in College Algebra in Fall 2016

CCD's motivation for pursuing developmental education reform was to improve student outcomes, yet reforms also had limited cost impact for the institution

- Over the time period of reforms, CCD slightly decreased class sizes for students who need it most (Dev Ed) and slightly increased the gateway course class size. Coupled with the enrollment shift described above, this resulted in slight decline in average instructional cost per SCH across Dev Ed and gateway math (from \$80/SCH to \$76/SCH)
- Altogether, improved course success rates and minimal changes to cost imply increased efficiency for the institution, with a decline of more than half in instructional cost per gateway course completion (from ~\$2.5k to ~\$.0.9k)