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Innovating at Scale

Guided Pathways Adoption and Early Student Momentum Among the AACC Pathways Colleges

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AACC Pathways

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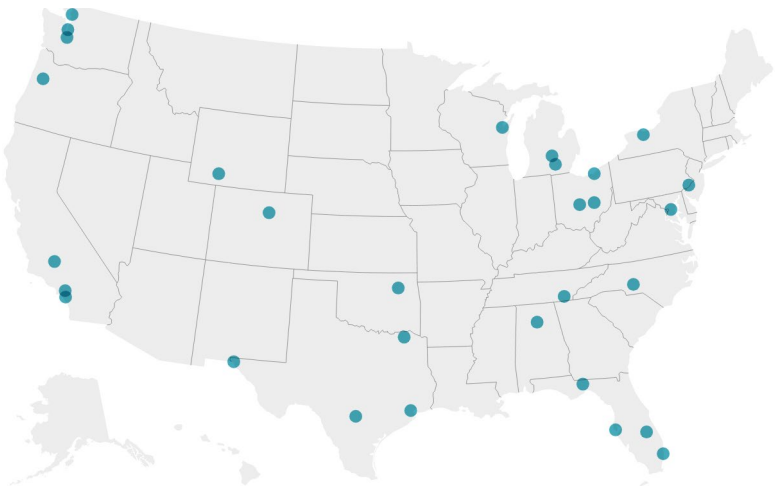
Introduction: The AACC Pathways Project Seven Years Later

In 2015, the American Association of Community Colleges (AACC) announced the AACC Pathways Project, a national initiative designed to support a cohort of community colleges to implement and scale whole-college guided pathways reforms. When the project launched, guided pathways was still a new idea. Yet, momentum was building around a set of research-based design principles organized under four areas of practice intended to help colleges reimagine how students enter and complete programs of study aligned with advancement in the workforce or transfer in a major. The release of *Redesigning America's Community Colleges* (Bailey et al., 2015) as well as recommendations in *Reclaiming the American Dream*, AACC's (2012) report by the 21st Century Commission on the Future of Community Colleges, made an urgent case for developing a new community college model.

Through a competitive application process, 30 community colleges from 17 states were selected for the project and embraced the challenge of redesigning the student experience at scale—that is, for all students in all programs of study. In 2016 and 2017, cross-functional teams of faculty, administrators, staff, and advisors participated in a series of six three-day institutes (see Table 1) during which they learned about the guided pathways model from national experts and fellow higher education practitioners, analyzed institutional data, and worked through questions and activities aimed at helping them examine the current student experience at their institutions and design new college practices to improve the student experience in ways that would increase completion of programs and reduce time and credits to a credential.

Colleges Participating in the AACC Pathways Project



Alamo Colleges	Texas
Bakersfield College	California
Broward College	Florida
Cleveland State Community College	Tennessee
Columbus State Community College	Ohio
Community College of Philadelphia	Pennsylvania
Cuyahoga Community College District	Ohio
El Paso Community College	Texas
Front Range Community College	Colorado
Indian River State College	Florida
Irvine Valley College	California
Jackson College	Michigan
Lansing Community College	Michigan
Linn-Benton Community College	Oregon
Monroe Community College	New York
Mt. San Antonio College	California
Northeast Wisconsin Technical College	Wisconsin
Paris Junior College	Texas
Pierce College	Washington
Prince George's Community College	Maryland
San Jacinto Community College	Texas
Skagit Valley College	Washington
South Seattle College	Washington
St. Petersburg College	Florida
Stanly Community College	North Carolina
Tallahassee Community College	Florida
Tulsa Community College	Oklahoma
Wallace State Community College	Alabama
Western Wyoming Community College	Wyoming
Zane State College	Ohio

Table 1. Topics of the Six AACC Pathways Institutes

Institute Number and Date	Title/Topic of Institute
Institute 1, February 2016	Leadership for Transformational Change: Implementing Pathways at Scale
Institute 2, April 2016	Pathways Design I: Mapping Pathways Through the Institution
Institute 3, October 2016	Redesigning Student Support Intake Systems and Ongoing Academic and Nonacademic Supports
Institute 4, February 2017	Ensuring Students Are Learning and Progressing Along the Pathway
Institute 5, June 2017	Pathway Design II: Pathways to Transfer and Employment
Institute 6, October 2017	Policy Meets Pathways: Governing Board Roles and Policy Change

Over the course of the project, which ended in spring 2022, the participating colleges focused on implementing and scaling practices within the four practice areas of the guided pathways framework: (1) mapping pathways to students' end goals, (2) helping students choose and enter a program, (3) keeping students on a path, and (4) ensuring that students are learning. This framework has since been adopted by hundreds of other colleges across more than a dozen states that are leading guided pathways initiatives (CCRC, 2021).

Seven years since the project began, these colleges have made impressive progress adopting guided pathways practices at scale. Colleges that have adopted the model more comprehensively are seeing promising trends in leading indicators of success for their students.

The Community College Research Center (CCRC) served as the knowledge development partner with AACC and the 30 colleges from the start of the project. Our role was to partner with the colleges to collect qualitative and quantitative data on the adoption of guided pathways reforms and to measure changes in student outcomes during the first year of college. CCRC has partnered with the AACC Pathways colleges as sites for research on topics including the practices they have been implementing as part of their guided pathways reforms (Jenkins et al., 2017), the ways they have managed the necessary large-scale change process (Jenkins et al., 2019), and the costs and challenges of funding their reforms (Jenkins et al., 2020).

To measure progress in adopting guided pathways practices, we administered CCRC's Guided Pathways Scale of Adoption Assessment (SOAA) (Lahr, 2018) to all 30 participating colleges. The SOAA includes about 20 "essential guided pathways practices" that are grouped under the four areas of practice described above. For each practice, colleges were asked to state their level of adoption, ranging from "not occurring" to "at scale." We administered the SOAA in spring 2016, at the start of the project; in the fall of 2016, 2017, 2018, and 2020; and, finally, in spring 2022. Each time, teams of administrators, faculty, and staff from the colleges completed the SOAA, and CCRC researchers followed up via telephone or video calls with the personnel involved in filling it out to verify the information provided and glean details about changes in practice and how they were managing the change process.

In addition, CCRC has collected key performance indicator data annually from the colleges for the period prior to the start of the initiative through the 2020-21 academic

year. The data we collected are measures of the progression and persistence of first-time college students during their first year at the college. Research by CCRC and others indicates that these early momentum metrics (EMMs) are leading indicators of longer term success for students. As such, they can be used for formative evaluation of reforms by colleges and by project leaders and funders as early indicators of whether reforms change students' progress in ways that suggest improved completion in the longer term.

This report draws on interviews conducted in spring 2022 with guided pathways leaders at the 30 AACC Pathways colleges. It also presents data from the SOAA distributed to all 30 colleges and trend data on students' early momentum at each college through the 2020-21 academic year. In the report, we share what these colleges have accomplished and what they—and CCRC—have learned about institutional transformation in community colleges. In Section 2, we describe the practices adopted by the colleges and how these practices are intended to change the student experience. In Section 3, we share examples of how the COVID-19 pandemic affected the ways colleges have been supporting students and detail the colleges' transitions to online and hybrid teaching and advising. We could not have anticipated the pandemic when the AACC initiative began, but encouragingly, many colleges indicated that guided pathways reforms helped their students during the pandemic. Section 4 examines trends in adoption of guided pathways reforms at scale and in EMMs for students between 2012 and 2020. Finally, in Section 5, the conclusion of this report, we discuss how the guided pathways model has evolved and share the colleges' reflections on their future goals.

About the AACC Pathways Colleges

The 30 colleges in this project represent 17 states and include large and small institutions, single- and multi-campus colleges and districts, and rural, suburban, and urban colleges.

Location

Urban
16 colleges

Suburban
6 colleges

Rural
8 colleges

Size

<3,000 students
6 colleges

3,000–14,999 students
16 colleges

>15,000 students
8 colleges

MSI Designation

Hispanic-Serving Institutions
7 colleges

Asian American and Native American Pacific Islander-Serving Institutions
4 colleges

Predominantly Black Institutions
2 colleges

The Design and Adoption of Guided Pathways Practices

At its core, the guided pathways model seeks to fundamentally change how students experience college, with the goal of firmly establishing all students on a clear educational path to a career aligned with their aspirations and goals. Colleges that have adopted the guided pathways framework are implementing reforms designed to transform how students make sense of program options, explore program and career opportunities, choose a program of study, and make educational and career plans. Most AACC Pathways colleges have also adopted reforms aimed at eliminating prerequisite developmental education courses that delay entry into a program of study and have increased the academic and nonacademic support that students receive.

Here we provide examples of reforms that AACC Pathways colleges have implemented, organized by the four areas of practice within the guided pathways framework: (1) mapping pathways to students' end goals, (2) helping students choose and enter a program, (3) keeping students on a path, and (4) ensuring that students are learning across their programs. Information and data are drawn from the final SOAA conducted in spring 2022 as well as follow-up interviews with program leaders at each college.

Practice Area 1. Mapping Pathways to Students' End Goals: Changing How Students Make Sense of Program Options and Opportunities

The first practice area of the guided pathways framework, mapping pathways to students' end goals, is intended to change how students make sense of program options and opportunities. Rather than being confronted with an uncontextualized list of dozens of programs, new students are introduced to programs organized into broad fields of study—or meta-majors—that can help them understand how their interests align with academic programs and how those programs are related to each other and to career opportunities. And instead of being directed to course catalogs that are hundreds of pages long, students can view program maps that identify appropriate math courses based on the skills they will need in a particular program and that clearly illustrate a path not only within their community college but also to transfer pathways at partnering four-year institutions that lead to bachelor's degrees and careers.

Meta-Majors

Meta-majors were one of the early reforms adopted by the AACC Pathways colleges. By 2022, 28 of the 30 colleges had organized programs into meta-majors on their college websites. As the various methods of implementation by the colleges demonstrate, meta-majors are an organizing principle that colleges customize for their institutional context. One way colleges customize meta-majors is by the language they use to identify them: At St. Petersburg College, meta-majors are called **Career and Academic Communities**; at San Jacinto College, they're called **Areas**

of Study; and at Wallace State Community College, they're called Pathways. The number and types of meta-majors also vary based on program offerings and local labor market needs. For example, St. Petersburg College organized their programs into ten meta-majors, whereas Wallace State has four. Finally, while some meta-majors—Health Sciences, STEM, and Arts and Humanities—are relatively common across colleges, others are highly specific to a college and its region. Northeast Wisconsin Technical College, for instance, created a meta-major for Agriculture, Food, and Natural Resources that includes multiple programs related to dairy and other local industries, and San Jacinto College created one for Construction, Industry, Manufacturing, and Transportation that includes Process Technology programs leading to careers in Houston's petroleum refining industry. As we discuss in the sections on Practice Area 2 (p. 7) and Practice Area 3 (p. 12), meta-majors can also be used to organize student onboarding activities and advising.

Program maps. The same 28 colleges that adopted meta-majors also engaged in some form of program mapping to delineate course sequences and requirements for all programs on their websites. Program mapping involves clarifying program pathways and timelines to completion. Additional practices for enhancing program maps include (1) intentionally sequencing courses in career and technical programs so that students can earn certificates while progressing through their program, (2) strengthening relationships with four-year partners to improve transfer paths, and (3) developing math pathways that enable students to learn the math skills they need for their program without requiring most students to take college-level algebra. As a result of work on program mapping, interview participants from the colleges indicated that students know what to expect from their programs and are more confident that they are registering for the right courses.

Clarifying program paths and timeline to completion. The core of program mapping involves laying out which courses students need to take to complete a program and the approximate order in which students should take them. To accomplish these goals, the colleges have adopted a number of innovative strategies. For example, Irvine Valley College refers to their maps as milestone maps because they illustrate the timeline for completing key administrative steps alongside the sequence of courses within each program. To facilitate more seamless transitions between programs in the same meta-major (Pathway), Jackson College intentionally sequenced early courses to apply to multiple programs. The college contends that overlap between programs will benefit students who are not accepted into selective admission programs or who decide to switch to a new program area because they are able to see alternative programs they can pursue by virtue of the courses they have already taken. Finally, recognizing that course requirements frequently change and that program maps must be accurate to be effective, colleges are institutionalizing processes for routinely updating maps. Pierce College, for example, embedded program maps in Starfish so that any changes the curriculum committee makes will be readily accessible throughout the college.

Embedding short-term credentials. As part of program mapping, several of the colleges—Northeast Wisconsin Technical College, the Community College of Philadelphia, Stanly Community College, and Wallace State Community College—have intentionally sequenced courses to embed short-term credentials within

program pathways. Guided pathways leaders from these institutions report that embedded credentials not only provide a valuable means of documenting skills for employers but also serve as on- and off-ramps when life circumstances interrupt students' pursuit of a degree.

Strengthening transfer paths. To truly impact students' ability to achieve their end goals, it is not enough to map programs within community colleges. More than half of the 28 colleges that have clearly mapped out their programs have also developed strategic partnerships with four-year colleges and universities to strengthen transfer pathways in specific major fields. To increase transfer rates to local universities and provide incentives for students to stay in the area, Tulsa Community College (TCC), along with seven of its university partners, created the Tulsa Higher Education Consortium. The participating institutions have developed Linked Degree Transfer Maps, program maps outlining the path to a bachelor's degree that identify recommended courses to take at TCC, the course requirements that these recommended TCC courses fulfill at the four-year university partner, and recommended courses to take at the four-year university. Additionally, the college recently created a University Transfer Office, led by a director, which is a new position. Since its inception, TCC has developed 170 new articulation agreements with partner universities in specific major fields and opened a Transfer Center Office on each of its campuses. Finally, TCC has launched an innovative program with Oklahoma State University whereby the college offers classes on a nearby satellite campus of the university to allow students to take them as a cohort while having a four-year university experience. The program started with business and has expanded to include psychology and engineering.

Prince George's Community College in Maryland is taking advantage of recent state legislation designed to improve transfer outcomes by engaging in multiple efforts to align their courses with those of their four-year partners. Two key features of the legislation are a requirement that public institutions provide a written explanation to the sending institution if they refuse to accept a student's credits for transfer and a requirement that four-year institutions accept a course for transfer if 70% of the learning outcomes match. Faculty from Prince George's are participating in discipline-specific affinity groups organized by the University System of Maryland and the Maryland Association of Community Colleges to review articulation agreements and develop shared learning outcomes for assessing the comparability of courses. The affinity groups consist of two- and four-year faculty and are divided into 12 academic fields (Maryland Higher Education Commission, 2021). Over the past two years, Prince George's has revised the learning outcomes and course descriptions for all of its courses to better align with courses offered by its four-year partners. Additionally, the college has created "pre-major" programs that prepare students for transfer in a major at four-year institutions. For example, the college has created programs in English, biology, and criminal justice that include coursework that would prepare them to be juniors in one of those programs at a four-year institution.

Developing program-aligned math pathways. Developing math pathways that align with the math skills students need for their program, rather than requiring all students to take a college algebra-based sequence, can play a critical role in helping students succeed. Twenty-one of the AACC Pathways colleges have scaled math

pathways. El Paso Community College (EPCC) is a noteworthy example of how the colleges approached the development of math pathways. EPCC created its math pathways while organizing program maps. To determine which math sequence was the best fit for each program, the college held speed-dating-style events during which faculty from a specific area of study had the opportunity to discuss options for math courses with math faculty. According to a senior administrator at EPCC, the process was "eye opening" for many faculty members. Following the implementation of math pathways, fewer students at EPCC are being directed to pre-calculus, and more are being directed to quantitative reasoning and statistics.

Practice Area 2. Helping Students Choose and Enter a Program: Changing the Onboarding Process

The second guided pathways practice area is intended to transform the student experience by prioritizing the onboarding of students into a program of study from the start. By 2022, all but one of the AACC Pathways colleges had redesigned—or were in the process of redesigning—the new student onboarding experience to help students explore options and choose and plan a program of study. The guided pathways model also expands the concept of onboarding by extending it into high school, leveraging dual enrollment as a key strategy for connecting students to program pathways that start in high school and feed directly into college. By emphasizing onboarding's role in helping students both choose *and* enter a program, the guided pathways framework establishes onboarding as a process rather than an isolated event. Assessing and meeting students' developmental needs through reformed practices also begins during onboarding.

Supporting Program Exploration

Helping students choose and enter a program begins with providing opportunities for students to reflect on their interests, aspirations, and goals; identify programs that align with their interests; and explore those programs. To embed greater opportunities for individual academic and career exploration, the AACC Pathways colleges reimagined multiple aspects of onboarding, including enrollment, orientation, new student advising, and career services. In addition, they developed a variety of events to offer students in-depth information about programs and connect students to faculty, peers, alumni, and professionals in their field of interest.

Application and intake. A number of the colleges, including Broward College, Lansing Community College, Monroe Community College, and St. Petersburg College, revised their applications by using meta-majors to make it easier for students to understand the program options in each field and to select a program. In addition, colleges are using the information students provide on the application to initiate conversations about their interests and direct them to advisors to help them confirm their program choices. For example, Monroe Community College asks students to select one of the college's seven meta-majors (Schools) when they apply. And after a prospective Stanly Community College student selects a program of study on either the application or a recruitment form, a success coach specializing in that field of study reaches out to answer any questions about admission and financial aid.

Orientation and advising. Many of the colleges are grounding orientation and advising in meta-majors to provide structured opportunities for program and career exploration. Cleveland State Community Colleges organizes orientation around its meta-majors (Career Communities) and offers activities to help undecided students assess which area might be the best fit for them. St. Petersburg College assigns advisors based on the meta-major (Career/Academic Community) that students select on the application; advisors begin all career conversations by asking students questions to verify they are in the right meta-major before discussing their program. After evaluating how confident students are about their career goals and how knowledgeable they are about their intended career path, advisors determine the appropriate level of follow-up by coding students as red (intensive), yellow (moderate), or green (light). Students in all but two programs at Stanly Community College are required to continue meeting with the success coach who initially reached out to them as part of the intake process throughout their entire time at the college. Linn-Benton Community College also moved away from generalized mass orientations; it uses individualized onboarding with navigators assigned by meta-major.

At the Alamo Colleges, enrollment coaches shepherd students through the enrollment process and then connect them with an advisor in their meta-major (Institute). Similarly, at Front Range Community College, pre-enrollment advisors talk with students about their goals to ensure they select a program that is a good fit so that they can be connected to an academic advisor in their field of interest.

Career exploration. In addition to the above orientation and advising practices, several of the colleges have embedded more intensive opportunities for career exploration throughout the onboarding process. At Broward College, the entire focus of advising has shifted from registering students for courses to using students' life and vocational goals to inform program and career planning. All advisors, who are assigned by meta-major (Pathway), have been trained in career advising and in analyzing the results of career assessments. The assessments are used as the starting point for conversations about students' interests, skills, and talents. Recognizing that students' minds change, advisors regularly revisit these conversations to confirm that students feel confident about the direction in which they are headed. A senior administrator at Broward explained the emphasis on serial one-on-one discussions by noting, "Career exploration is a process that takes time." Advisors also use labor market data to help students understand the predicted demand for jobs in their field of interest in the local area over the next five to ten years and to ensure students understand how they can advance through the trajectory of related credentials, from technical certificates to associate and bachelor's degrees, in industries that may be experiencing growth.

In 2021, Indian River State College added eight student success coaches to the admissions team—one success coach for each meta-major. The success coaches are assigned to prospective students by meta-major and work with their students from application through registration for their first term. The success coaches facilitate a career exploration process with students and help them build connections within their meta-major. One of the main metrics that the college tracks is how many students move from application to enrollment by meta-major.

Tailored support for undecided students. The AACC Pathways colleges have also emphasized the importance of career exploration by focusing on undecided students and those enrolled in general studies. At Broward College, undecided students can choose to enroll in an exploratory major (essentially general studies), but advisors and career center staff provide additional outreach and support to help them select a more specific program as soon as possible, and faculty intentionally recruit them. Since adopting this policy, the college reports an increase in the number of students selecting a particular program: Last year, 79% of students were enrolled in a program other than general studies.

A major focus of the guided pathways work at San Jacinto College has been reducing the number of students in general studies by emphasizing career exploration throughout onboarding. Following orientation, all students are required to complete the Focus 2 Career assessment, which is designed to help them identify their career goals and select a program of study. Advisors use the results of the assessment to discuss students' interests and confirm their choice of program and, if students plan to transfer, their intended transfer institution. A one-credit student success course builds on these conversations through the inclusion of a career exploration project. If students who initially enrolled in general studies have not selected a different program of study by the end of their first semester, they are required to meet with an advisor, and career services staff also follow up with them.

Networking opportunities and program events. Finally, a small number of the colleges are helping students explore programs and careers by connecting them to people in fields of interest through networking opportunities and program events. Jackson College organizes Pathway Showcases, where students meet faculty and learn more about the programs within a given meta-major (Pathway). During the pandemic, the showcases were offered online. Faculty recorded informational videos about each program that students could watch at any point during the showcase week and scheduled open hours to meet with students virtually. St. Petersburg College holds an entire week of virtual and in-person events for each of its meta-majors (Career and Academic Communities). The events are intended to illuminate what students should consider when pursuing an education and career in a given field and to facilitate networking with professionals and learning about career opportunities. Faculty talk about projects they are working on or papers they are writing. To attract students, in-person events often include food and the handing out of college swag.

Developmental Education Reforms

Developmental education reform is a central component of the broader whole-college guided pathways approach. Long sequences of traditional prerequisite developmental courses often delay or prevent students from accessing gateway college courses and programs of study. Our research with the AACC Pathways colleges reinforces the importance of scaling reforms, such as the adoption of corequisite developmental courses, aimed at helping more students complete gateway math and English in their first year. Of the 30 AACC Pathways colleges, 15 have scaled corequisite developmental reforms, and nine are in the process of scaling them. As of spring 2022, the remaining

six colleges had not made substantial progress scaling corequisite support in math and were still struggling with securing institution-wide commitment to this change. Of the six colleges that have not made progress, most have adopted a corequisite course for college-level math and English courses; however, the corequisite course remains one of a number of developmental education options, including the traditional prerequisite sequence. While not all the colleges succeeded in scaling developmental education reforms, the steps that they took to provide students earlier access to college-level courses are noteworthy. These steps include removing placement tests for developmental education and installing multiple alternative placement measures and guided self-placement, eliminating at least some prerequisite developmental education courses and implementing corequisite courses for learning support, and developing more relevant math pathways that align math requirements with the knowledge needed in a given program. Recent research has shown that these practices lead to better outcomes for students (Bickerstaff et al., 2022).

Multiple measures and guided self-placement. At Wallace State Community College, the introduction of multiple measures for placement into developmental education was described by one dean as "one of the most impactful things we did to benefit students." In the past, when the college determined placement based on either a single placement test or ACT score, between 1,000 and 1,300 students were required to take developmental courses. The use of multiple measures accounting for students' high school GPA and coursework has decreased the number of students required to take developmental courses to 400 in fall 2022. Similarly, at South Seattle College, adopting a **self-directed placement tool** for English was described as "one of our biggest successes." The 30-to-45-minute online assessment guides students through a review of their current reading and writing practices and outlines course options at the college so students can choose what they feel is the best fit. After switching to self-placement, the college has seen a significant increase in the number of students passing college-level English. Inspired by this success in English, math faculty are currently considering how they might apply a similar directed self-placement process.

Corequisite developmental support. San Jacinto College is one of the colleges that have made significant progress scaling developmental education reforms—it has moved entirely to corequisite support for math and has combined reading and writing support in a combined corequisiste course. The only standalone prerequisite developmental course remaining is a foundational-level reading course that is essentially an adult basic education course (and as such is offered to students at no charge). Zane State College has also switched to a corequisite model. Highlighting the importance of this shift, a senior leader at Zane noted that the college had previously won national awards for reforms to developmental education that still included three levels of prerequisite course requirements.

Educational Planning

Another critical aspect of helping students to enter a program is ensuring that they know what the course requirements are, what order courses should be taken, and how long it will take to complete the program. Standardized program maps can be a

useful starting point, but they don't show students how their personal path through a program will be impacted by the application of transfer credits or credits for prior learning or by the number of courses they take each semester. About half of the AACC Pathways colleges help every incoming credit-program student develop a full-program educational plan in the first or second term; most of the others are in the process of scaling up assistance with educational planning.

Several of the colleges require that students create an educational plan as part of student success or first-year experience courses. At Cleveland State Community College, new students start a plan with their assigned success coach and finalize it during the required first-year experience course. Monroe Community College redesigned its student success course to focus on completing an individualized full-program plan connected to a career rather than emphasizing general study skills. The success course is also offered and customized by meta-major (School). Not all of the seven Schools require the success course, but the advisors (specialists) in those areas, primarily in liberal arts, create plans with their students. At Prince George's Community College, the two main assignments for the first-year experience course are the completion of a program plan and a financial plan.

Onboarding for High School Students

Community colleges all over the country serve large numbers of high school students through dual enrollment and other programs designed to increase access to college. The guided pathways model approaches these programs as an opportunity to onboard high school students into a program of study rather than having them merely provide discrete, standalone courses. At San Jacinto College, for example, educational planners manage a caseload of high school dual credit students and meet with each of them—once they accumulate 15 credits—to select a degree plan and map their pathway to completion. By adapting many of the innovations in place for matriculated students—meta-majors, program maps, individualized educational plans, and case management advising—the AACC Pathways colleges are helping high school students choose and enter pathways that align high school and college.

Monroe Community College packages its courses for dual enrollment students by meta-major (School). All of the materials sent to high schools are color coded so that students know which courses apply to which Schools (some courses apply to multiple Schools). Stanly Community College has developed program maps that align high school courses with college pathways. These maps link high school dual enrollment courses to the college courses needed to complete an associate degree in a given field. Cleveland State Community College and Jackson College develop individualized educational plans with students enrolled in their early college high school programs. Jackson College assigns a student success navigator to each of the school districts it works with. The navigators, who spend the majority of their time in the high schools, develop a plan including both high school and college courses with each student enrolled in early college and are also available to advise dual enrollment students not participating in early college on course and program options.

Practice Area 3. Keeping Students on a Path: Changing How Students Are Supported Within a Program and Helped to Manage College and Life

Once students have selected and entered a program path, the third guided pathways practice area emphasizes the importance of (1) providing ongoing support to monitor students' progress along their path and intervene as necessary and (2) addressing structural barriers created by colleges as well as practical challenges of everyday life that may derail students. The AACC Pathways colleges have demonstrated that keeping students on path is an institution-wide effort involving not only support from faculty, student services staff, and peers but also changes to course scheduling and access to wraparound supports to help students balance college and other domains of life. To ensure students are making progress on their path, the colleges have adopted case management models of advising, increased faculty engagement in student success through early alert programs,and launched peer mentoring initiatives. To remove obstacles from students' paths, the colleges have switched to predictable scheduling systems, introduced condensed (seven- or eight-week) course formats, and established supports for basic needs.

Advising That Focuses on Progress Through Programs

A drop-in model of advising expects students to seek out help and makes it difficult for them to sustain a relationship with a single advisor. In contrast, a case management model of advising intentionally assigns advisors a caseload of students whom they follow over time. Case management advisors are thus well positioned to monitor a student's progress, determine whether a student may be at risk of falling off track, and intervene with additional support if necessary—particularly when case management advising is implemented in conjunction with efforts to ensure all students develop individualized full-program educational plans.

Apart from the core principle of an assigned caseload, there is not necessarily a right or wrong way to implement case management advising; however, the guided pathways framework suggests that advisors' ability to monitor students' progress in a program will be enhanced if they have a connection to the program area. The AACC Pathways colleges have adopted a number of different approaches to assigning advisors a caseload of students. Altogether, 13 colleges have implemented case management advising at scale for continuing students, whereby each student has an assigned advisor who stays with them throughout their time in the college. Another 11 colleges are in the process of scaling case management advising. Of the 13 that have scaled case management advising, all but two colleges have organized case management advisors by meta-major. At most of these 13 colleges, professional advisors do the advising; at three of them, faculty serve as coaches. Two of the 13 have assigned success teams comprising multiple support staff (including advisors and financial aid, career services, and TRIO-type program staff) to case manage students.

Case management advising by meta-major. Since 2014, the Alamo Colleges have used AlamoADVISE, a case management model of advising based on meta-

majors. Students first meet their assigned advisor and begin developing an educational plan called an Individual Success Plan (ISP) during orientation; they are then required to meet with their advisor after completing 15, 30, and 45 credits. Moving forward, guided pathways leaders hope to build upon the success of this model by lowering caseloads (currently 350 students per advisor) to 300 students per advisor for most students, and to one advisor for 150 students for those most in need. One of the strategies under discussion for targeting support is the development of a tiered system of advising touch points—rather than requiring the same three touch points for all students—and creating specialized supports for specific populations, such as students who don't meet the guidelines for satisfactory academic progress.

Broward College adopted case management advising by meta-major (Pathway) about three years ago and hired enough advisors to decrease the average caseload to under 300 students. To develop a systematic means of monitoring students' progress, advisors collaborated with college administrators on the creation of a rubric for identifying key performance indicators they are accountable for tracking and seeking to improve, including the number of credits students take per term, retention, and time to degree.

Front Range Community College decided to redesign advising after results from the Community College Survey of Student Engagement (CCSSE) revealed the need to do so. A large part of the problem was that students felt conversations with advisors were too general, reflecting advisors' responsibility for covering all of the college's programs. Recognizing that one individual could not maintain detailed knowledge of so many programs, the college opted to assign advisors to specific meta-majors (Career and Academic Communities). At the same time, the college hired more advisors to make caseloads manageable and developed an advising syllabus to codify a relationship-based—rather than transactional—case management approach and philosophy. All new students are required to meet with their advisor to discuss their choice of program, select first-semester courses, review financial aid options, and begin building a relationship. Additional meetings are not required, but advisors use EAB Navigate to track students on their caseload, and students can schedule advising appointments through Navigate.

Stanly Community College's expanded success coach model currently employs 10 full-time and two part-time success coaches, with a caseload per success coach of approximately 350 students. As previously mentioned, students are assigned a success coach after they apply, and they stay with their success coach throughout their time at the college. In fact, students who leave the college remain part of the success coach's caseload for one year following their departure from the college to encourage and facilitate their return.

Finally, at Indian River State College, one of the recent priorities at the college was to reorganize all advising staff by meta-major—from admissions and ongoing advising through program completion. The college now has student success coaches embedded in meta-majors who work with students from application through registration for their first term. These new positions were primarily funded by the reorganization of several recently vacated positions. Once students register for their first term, they are transferred

to a meta-major advisor. The meta-major advisors—who used to also help students register for their first term—focus on supporting students through their programs. Because the success coaches and advisors are both assigned to meta-majors, collaboration between them has increased. Along with faculty from the academic departments, they now work together as a "meta-major team" to advise and retain students.

Case management advising by meta-major with a support network. At Bakersfield College, each meta-major (Learning and Career Pathway) has a designated support network consisting of instructional faculty and student services staff members assigned to help students in that meta-major. Advisors and counselors can meet with any student but also have an assigned caseload of students within their meta-major. In addition to advisors and counselors, the support networks include staff from tutoring, financial aid, and student employment. Students can see contact information for everyone in their support network by logging into Starfish. In developing the support network model, the college sought to scale intensive supports that had previously been available only for select populations such as athletes.

Case management advising using a split model of professional and faculty advisors. In a split model, professional advisors and faculty members share responsibility for case management. At Linn-Benton Community College, navigators provide initial intake advising for new students and then hand them off to a faculty advisor once they enter a program. Navigators and faculty advisors are assigned based on meta-major and meet regularly as a "meta-team." Navigators are encouraged to take time to learn as much as possible about each of the programs in their meta-major in order to best support students. At Pierce College, all students are assigned both a success coach and a faculty advisor, who jointly monitor their progress throughout their time at the college. The college currently has 24 success coaches, with an average caseload of approximately 250 students.

Case management advising without meta-majors. Some colleges—especially smaller colleges—find it infeasible to base advising on meta-majors. Paris Junior College, for example, has adopted an intensive case management model that assigns success coaches based on students' last name because enrollments in many of its program groupings are too small to justify having advisors specialize in them. (Note, however, that students in workforce programs are assigned directly to a faculty advisor.) The college reorganized several positions to create a team of seven success coaches, each of whom has a caseload of 150–200 students (not including dual credit students). The goal of the success coach model is to ensure that all students have a main point of contact for anything they need. Success coaches send students a letter as soon as they are admitted and then schedule a required meeting about first-semester enrollment. Success coaches also monitor students' attendance (based on attendance reports faculty are required to submit after every in-person class and on logins tracked for online courses) and contact students at risk of dropping out to help them access resources such as childcare and transportation.

Peer mentoring. In addition to advisors and faculty members, peer mentors can play a significant role in keeping students on path. After year-three outcomes from a pilot mentoring program showed promising results, Broward College decided to

expand its peer mentoring to reach even more students. Chief among the mentors' goals is ensuring their mentees register for the next semester. Results from the pilot program indicate that students with a peer mentor consistently attempted and earned more credits every semester of the pilot than did students without a mentor. Program retention rates were close to 100% for the peer mentors and around 80% for mentees. Broward partnered with the nonprofit PeerForward to provide training for mentors and established the peer mentor role as a paid position through AmeriCorps. Peer mentors also receive an educational award, access to SNAP benefits, and loan deferment from being an AmeriCorps member. The college currently has 63 peer mentors, each working with around 10 students for a total of 610 students. Over the next five years, Broward plans to scale the peer mentoring program to reach 1,000 students, with a focus on target populations of first-generation and first-time students. As part of the scaling effort, the college hopes to bring back program alumni to serve as peer mentors.

Early alerts. Early alerts can be critical to deepening faculty involvement in monitoring students' progress and to increasing collaboration between academic support and student support services. Paris Junior College learned that faculty input is key to designing a successful early alert system. Upon realizing that faculty use of early alerts was low because faculty were not receiving any updates after submitting alerts, the college revamped early alerts as retention alerts and took advantage of switching to a new enterprise resource planning (ERP) system to simplify alert submission and follow-up. In the new system, success coaches are able to mark an alert as resolved after they have contacted the student, and faculty are able to see how the success coach resolved the alert.

Student Responsive Course Schedules

A commonly overlooked barrier that can derail students is course scheduling. If the next course a student needs in a required sequence is not offered in the term the student had planned to take it, or if it is offered on a day or time when the student cannot attend, this delay could significantly prolong the student's time to completion and increase the risk of stopping out. Additionally, the student may be forced to register for an alternative course that is not on their plan—if, for example, their financial aid requires enrollment in a certain number of credits per term—thereby leading to the accrual of excess credits. The AACC Pathways colleges have refined course scheduling in a number of ways.

Plan-based course scheduling. Seven of the colleges have implemented course scheduling systems that enable students to see when courses are offered beyond the next term. All but one of these are using students' individual educational plans to create the schedules. Another 11 colleges are in the process of scaling predictable schedules. For example, Broward College and Cleveland State Community College base course schedules on students' educational plans. Cleveland State Community College implemented block scheduling and, for the summer term, aligned course offerings with the courses included in students' plans. Broward College has found that the predictability afforded by course schedules that enable students to take the courses they need when they need them is particularly valuable for adult students.

Other forms of predictable scheduling. Even colleges that have not been able to fully transition to plan-based scheduling have realized benefits by focusing more on predictable scheduling. Skagit Valley College, for example, uses its knowledge about student plans to schedule the math and English courses that are critical to each program or program area. Instead of individualized plans, Wallace State Community College uses standardized program maps for scheduling but has found that even these provide a good sense of what courses should be offered and when because they know which students are in which programs. For its part, the Student Affairs Council at Front Range Community College compared the college's program maps with the course schedule to determine whether the schedule would allow students to complete on time and adjusted course offerings accordingly. Although the Council believes further refinements are needed, given that student coursetaking patterns frequently diverge from the standardized program maps, it has already seen a decrease in the number of credits to completion.

Condensed terms. Condensed terms (seven- or eight-week terms as opposed to the traditional 15-week semester) are another strategy for keeping students on path. Particularly for students who are working, caring for family members, and juggling multiple other responsibilities, four months represents a long amount of time during which life can easily get in the way of college. Condensed terms give students more flexibility and also minimize time lost if a student does need to withdraw from a course midway through a term. Two of the AACC Pathways colleges have implemented eight-week terms to increase the number of credits students can take in an academic year, and at least four others are planning to implement condensed terms in the coming academic year. A senior administrator at Northeast Wisconsin Technical College described one of the benefits of condensed terms as increasing "on- and off-ramps" for students. As of spring 2022, all courses at Northeast Wisconsin had been redesigned for eight-week terms. Preliminary college data indicates that since the launch of the eight-week courses, course success rates have increased college-wide, including for students of color. The college is currently evaluating the impact on completion rates, but earlier indicators such as persistence are showing positive signs, with a first-to-third-semester program persistence rate increase of 2.4 percentage points.

Jackson College and Prince George's Community College have both condensed some but not all of their courses. Jackson College shortened most courses to seven weeks but allowed a limited number of faculty who were not confident they could adapt the content of their courses for a condensed term to continue using the standard 15-week format. One faculty member reported that she appreciates the condensed format because it allows students to focus more deeply on a smaller number of topics at a time. Additionally, she believes the condensed format helps students maintain momentum because students who miss the start of the term must wait only a few weeks to register for courses. Prince George's Community College set a goal of converting 50% of 3-credit courses to a condensed format (as of spring 2022, approximately 30% were converted) but decided not to attempt to condense any courses worth more than 4 credits. Most of the condensed courses are general education courses with high enrollments. To make the case for condensed courses, guided pathways leaders at Prince George's point to the data: Even as overall

enrollments declined, enrollments in condensed courses increased, and success rates for condensed courses—both online and in-person—are higher and withdrawal rates are lower than for 15-week courses.

Wraparound Support

More and more colleges, including the AACC Pathways colleges, are recognizing that keeping students on their academic path requires supporting students' nonacademic needs. Lack of childcare and transportation, food and housing insecurity, and limited financial resources all pose significant barriers to credential completion. Although the SOAA does not specifically ask about wraparound supports, many of the colleges mentioned these services while discussing their guided pathways work.

To better understand students' needs and how to support them, Broward College administered a student climate survey, conducted student focus groups, and performed comprehensive scans of both campus-based and community resources. As a result of these efforts, the college allocated $3.6 million for childcare, which helped 1,000 students, and established a partnership with Lyft for transportation assistance. In addition, Broward is leveraging technology to create a "coordinated care network." Through its student success management system, EAB Navigate, 14 departments can raise 40 different alerts and contact both students and each other to direct students to support.

Like Broward, Zane State College is also using surveys to better understand students' needs and connect them with available resources. Questions about food and housing insecurity are now included in the new student intake survey. If a student indicates that they are experiencing food insecurity or other problems, a success coach provides information about college services such as the food pantry, clothing closet, and transportation assistance.

The Community College of Philadelphia (CCP) has long been committed to supporting the large population of economically disadvantaged students it serves. Since 2013, the **Single Stop office at CCP** has provided screenings for public benefits, access to emergency funds, assistance in obtaining healthcare coverage and filing taxes, free legal advice and financial counseling, and referrals to additional on- and off-campus resources. In addition, CCP is committed to increasing scholarships for low-income students and seeks out financial support for low-income students from local foundations.

Practice Area 4. Ensuring Students Are Learning: Changing How Faculty Are Supported and How Students Connect the Classroom to Careers

In many ways, ensuring that students are learning has proven the most challenging guided pathways practice area to define and operationalize. Nonetheless, the AACC Pathways colleges have shown a strong commitment to enhancing teaching and learning, and guided pathways leaders see clear connections between pedagogical reforms and guided pathways. In general, approaches to teaching and learning reforms

by the colleges fall into two broad categories: (1) enhanced professional development for faculty and (2) increased opportunities for experiential learning for students.

Investing in faculty is central to student learning—students cannot learn well unless faculty are given the time, resources, and support to teach well. Reflecting some of the most pressing issues facing higher education today, professional development for faculty at the AACC Pathways colleges over the past several years has focused on equity and on online learning. From a guided pathways perspective, it is also crucial to make sure that what students are learning directly connects academic coursework to the knowledge and skills they need to achieve their career goals. Hence, several of the colleges have adopted experiential learning as a core part of their guided pathways efforts.

Equity in Teaching

For the past three years, El Paso Community College has offered an equity-driven professional development program in which faculty assess their own classroom practices and consider whether these practices help or hinder different populations of students. Although the program is not directly tied to the college's guided pathways adoption, pathways leaders view it as supportive of guided pathways goals. Taking advantage of a partnership between the Success Center for Ohio Community Colleges and the Association of College and University Educators (ACUE), 72 faculty at Cuyahoga Community College completed a year-long ACUE course on inclusive teaching for equitable learning, and 57 additional faculty completed ACUE's micro-credential course, Designing Learner-Centered and Equitable Courses.

Several other colleges provide professional development related to culturally responsive pedagogy. The Community College of Philadelphia is using Title III grant funds to offer training in culturally responsive teaching. At Tulsa Community College, such training is part of a broader emphasis on equity in the classroom that also includes leveraging involvement in the **Caring Campus program** to focus on strategic support for marginalized students. Finally, the Center of Dynamic Instruction at Cleveland State Community College ran a professional development series that emphasized culturally responsive teaching.

Quality of Online Instruction

Guided pathways leaders at San Jacinto College felt fortunate that the college had already decided to prioritize professional development for online instruction prior to the COVID-19 pandemic. Although it was challenging for many faculty to adapt their course content, overall the college was well positioned to move online. Likewise, guided pathways leaders at Stanly Community College felt that the college's decision to increase its online course offerings a few years prior to the pandemic proved wise. The college used Perkins grant funds to pay for faculty members to take trainings from Quality Matters (qualitymatters.org), a nonprofit quality assurance organization that specializes in online learning. All new and redesigned online course curricula are evaluated using the Quality Matters framework, and instructors are not paid for developing courses until the curricula meet the Quality Matters standards. Tulsa Community College also scaled

implementation of an online teaching certification for faculty teaching online courses through Quality Matters. Instead of a temporary reaction to the pandemic, professional development for online instruction has become a standard part of support for faculty at the college.

Experiential Learning

Experiential learning enables students to learn by doing, to gain skills by practicing in real-world settings. Committed to granting all students access to such opportunities, the Alamo Colleges District launched AlamoEXPERIENCE, a district-wide experiential learning initiative spanning all five of its colleges. Through AlamoEXPERIENCE, students are encouraged to participate in multiple types of experiential learning, including classroom-based cocurricular learning, extracurricular activities such as events sponsored by clubs, field experiences (e.g., internships, apprenticeships, and job shadowing), and service learning (i.e., community service). All students receive an AlamoEXPERIENCE transcript, in addition to an academic transcript, that lists the experiential learning opportunities they have participated in and the knowledge and skills they acquired as a result.

At Wallace Community College, work-based learning is critical to providing students opportunities for experiential learning. Most work-based learning opportunities are paid; one major exception is the required clinicals in health programs. Other programs that do not offer paid work-based learning include a capstone work-based learning course. To make work-based learning both meaningful and feasible for students, the college intentionally schedules relevant courses so that students spend three days working and two days in classes. Because a few programs require students to work four or five days a week, the college offers weekend classes to accommodate those students. Finally, the Career Center at Cuyahoga Community College connects students to a variety of experiential learning opportunities such as job shadowing, cooperative education opportunities (paid job assignments that count for college credit), internships (paid and unpaid), and a paid summer internship program that also provides free tuition for one summer class and financial support for textbooks.

How the Pandemic Affected the Colleges

In 2020, the AACC Pathways colleges were entering their fifth year of reform work when the COVID-19 pandemic closed campuses and forced administrators, staff, and faculty to pivot to teaching, advising, and supporting students online. Much has already been written about the effects of the pandemic on community colleges. Enrollments declined sharply (National Student Clearinghouse Research Center [NSCRC], 2021), and low-income students and students of color were disproportionately impacted by the virus itself and by unemployment, increased caregiving responsibilities, limited access to technology, and food and housing insecurity (Brock & Diwa, 2021; Center on Budget and Policy Priorities, 2022; Centers for Disease Control and Prevention, 2022; The Hope Center for College, Community, and Justice, 2021).

The tremendous challenges posed by the pandemic also affected the adoption of guided pathways reforms at the AACC Pathways colleges. Roughly one third of the colleges reported that the pandemic delayed or stalled pathways reforms due to staff turnover and fatigue. One college had planned to implement several new initiatives—redesigning orientation to include group and individual advising, adopting a policy of asking faculty to post all midterm grades, and launching a campaign to engage students in their courses from day one—that all fell by the wayside during the pandemic. Another college lost 18 advisors, which significantly delayed the implementation of new technology for building individualized educational plans with students.

At the same time, however, the colleges found that their adoption of guided pathways structures and practices—and in particular case management advising and cross-functional change management strategies—had positioned them to respond more effectively to the pandemic. Like other community colleges across the country, many of the AACC Pathways colleges viewed the pandemic as an opportunity to accelerate innovation in a number of areas, including online learning and advising and support for students' basic needs. Although the colleges are wrestling with how to institutionalize the expansion of online options over the long term, it seems likely that these innovations will have lasting effects.

Guided Pathways Practices That Helped Colleges Respond to the Pandemic

Case management advising. At the Alamo Colleges, case management advisors were instrumental in maintaining connections to students at the height of the COVID-19 pandemic. The colleges instituted a campaign to communicate with students in some form—email, text, or phone call—once a week. Because advisors had already created individualized educational plans with their students, they could ensure students were staying on track. According to a guided pathways leader for the Alamo Colleges District, the combination of frequent communication from a person students already knew and clear educational plans was "foundational in our work to pivot to a virtual environment during the pandemic."

Similarly, a senior administrator at Stanly Community College commented, "I don't know what we would have done had we not established success coaches pre-COVID." Student survey data indicated that while only 40%–50% of students knew who their advisor was under the college's previous advising system, 90% of students knew their success coach under the new guided-pathways-influenced system. Because success coaches were familiar with their students and had established systems for maintaining regular contact, such as using Calendly for scheduling appointments, they were immediately able to reach out and encourage students to meet with them virtually.

Change management strategies. At Irvine Valley College, the guided pathways oversight team was well prepared to respond to the pandemic due to lessons learned from implementing pathways. Key lessons included recognizing the importance of being flexible and willing to change existing structures, and acknowledging the impossibility of managing whole college reforms from a single office or department.

Likewise, the guided pathways leadership team at Lansing Community College was, in the words of one interviewee, a "well-oiled machine" by the time COVID hit. Guided pathways leaders credited their experience redesigning practices to create pathways with helping them implement the changes necessary to transition to online instruction. Finally, as one Alamo Colleges District administrator noted, guided pathways was part of "the stickiness of the work" that united faculty and advisors in their passion to help students succeed and that enabled them to pivot during the pandemic.

Accelerated Innovation in Online Teaching, Advising, and Student Supports

One of the biggest areas of innovation spurred by the pandemic was the development of more online options for instruction, advising, and other student services. After swiftly moving online at the start of the pandemic, the AACC Pathways colleges, like many colleges around the country, are continuing to provide more online offerings and plan to sustain them for the foreseeable future. To meet students' needs, Prince George's Community College is providing online and in-person options for all academic and nonacademic services. Courses, for example, are offered in in-person, fully online, hybrid (partially online and partially in person), and hyflex (with the option of participating either in person or online) formats. In summer 2022, instructional leaders at Bakersfield College adopted a "student-centered" approach to developing course schedules that pulls data from Starfish and Ad Astra to make predictive decisions regarding student demand for courses. While Bakersfield College has returned to offering in-person instruction courses, the proportion of online courses offered by the college has shifted from less than 10% before the pandemic to over 30% post-pandemic in order to meet shifting student demand. With respect to advising, at some colleges, such as the Community College of Philadelphia, students with advising appointments have the option of meeting either virtually or in person even when advisors are working from their campus offices.

Explaining the rationale for the continuation of more online options, an academic dean at St. Petersburg College noted that virtual options not only benefit students by giving them more flexibility but also enable the college to extend its reach to students in other counties and other states. Additionally, guided pathways leaders from multiple institutions observed that the increased flexibility of virtual options has been especially beneficial for adult students. In the following, we detail how the pandemic drove online innovations in the core areas of teaching, advising, and other student services.

Professional development for online teaching. The pandemic did not simply give colleges an opportunity to strengthen existing approaches to online instruction; it also made it necessary to develop new ways of teaching and of supporting both students and faculty. A senior administrator at Cleveland State Community College described the response to the pandemic in terms of instruction as "revolutionary rather than evolutionary change." To support faculty in making this change, the college offered intensive trainings in online pedagogy over the summer of 2020 and throughout the 2020-21 academic year. In addition, deans and department chairs partnered with staff from the Center of Dynamic Instruction to review every online and hybrid course that was created and provide feedback to the faculty who created it.

Expanded course modalities. Rather than sticking with the traditional format of asynchronous online courses, instructors at Tallahassee Community College (TCC) offered live synchronous online courses, a new format that the college calls TCC Live. Interviewees described TCC Live as "a game changer," and the college plans to continue offering courses in this format. They have found there are some students who thrive in this format and that adults in particular value the combination of flexibility and virtual engagement. As one senior college leader said, students can "leave work and go home but still have face-to-face interaction."

At Tulsa Community College, the pandemic brought about more creativity in online teaching and learning. The college has been experimenting with different combinations of course modalities to determine what works best for students. Faculty have found that blended courses consisting of synchronous online sessions, asynchronous content, and in-person labs seem most effective because they allow students to benefit from both the more meaningful connections and intensive support afforded by in-person instruction and the flexibility of online instruction. Guided pathways leaders also noted that the blended courses are particularly helpful for first-generation students, who appreciate the in-person support, and for working adults, who value the flexibility of online instruction.

Northeast Wisconsin Technical College has found that advances in online instruction are not only providing more flexibility for students but also giving them new program opportunities. Most notably, the college was able to admit more nursing students after developing virtual simulations as an alternative to clinicals; previously, the number of students the college could admit to the program was restricted by the limited number of clinical spots available. The college added 16 spots in the spring 2022 cohort and 32 spots in the fall 2022 cohort.

Virtual advising. For several of the colleges, the introduction or expansion of virtual advising has been one of the most important areas of innovation catalyzed by the pandemic. Like most community colleges, Paris Junior College did not offer virtual advising prior to the pandemic, but even after returning to more in-person offerings, the college plans to retain the option of virtual appointments because of the increased accessibility to support. A guided pathways leader at the college described virtual advising as "one of the best things to come out of the pandemic." Broward College, which is also continuing to offer virtual as well as in-person advising, has found that more students than ever are making online appointments due to the increased flexibility. Similarly, at Tallahassee Community College, the fact that students can meet with an advisor virtually, rather than having to stand in line for an appointment, has significantly boosted students' engagement with advising. As a result, the college continues to offer advising appointments via Zoom for students who prefer to meet online. Finally, a guided pathways leader at Front Range Community College noted that offering virtual advising has reduced the number of no-shows for appointments and that the combination of virtual and in-person advising is helping the college better meet students' needs: While some students value the time saved with online appointments, others prefer face-to-face interactions.

Other virtual student supports. In addition to transitioning to online teaching and advising, the colleges began offering a number of other administrative and student support services virtually during the pandemic and plan to continue this due to the benefits for students in terms of increased flexibility and opportunities for engagement. Prior to the pandemic, tutoring at Jackson College was available only in person, Monday through Friday from 8 a.m. to 5 p.m. During the pandemic, the college moved tutoring online and found that 40% of tutoring hours were occurring in the evenings and over the weekend. After realizing that the traditional hours had not been meeting students' needs and had likely been preventing some students from accessing tutoring, the college decided to continue offering virtual tutoring options even after resuming in-person services.

Other services converted to virtual formats include peer mentoring at Broward College, mental health counseling at Stanly Community College, and orientation at both Cleveland State Community College and Northeast Wisconsin Technical College. Northeast Wisconsin Technical College has found that attendance for the virtual orientations far exceeds attendance for in-person sessions. A guided pathways leader at Zane State College observed, "The number of reasons we made students come to campus prior to COVID was silly." As a result of the pandemic, the college found ways to conduct remotely all transactions that previously required students to be in person.

Challenges in Institutionalizing Online Options

Although rapid advances in online instruction and support services provided a number of benefits for students, the AACC Pathways colleges have also been experiencing various challenges in implementing online innovations and in working to institutionalize them over the long term. Some of these are structural challenges related to staffing and determining the right balance of in-person, hybrid, and online options, while others involve determining which options best meet the needs of which students.

Highlighting some of the structural challenges, one college leader noted that even though the college has learned "good lessons" about providing virtual advising and counseling, it is still figuring out the staffing ramifications. Students now contact advisors via Zoom, email, text, and phone, so advisors must track their communications through multiple modalities, which can be time intensive and inefficient. A guided pathways leader at South Seattle College stressed that being able to provide high-quality in-person and online support under budget constraints is difficult. A student survey revealed that students continue to want online options, but as more instruction resumes in person, the college may be unable to sustain the same level of online support without new money.

While the need for online instruction during the pandemic fueled innovations that increased access and improved outcomes for some students, others were negatively impacted by the switch to online instruction. Because students have different needs and benefit from—or struggle with—online instruction in different ways, colleges should carefully assess the effectiveness of online instruction for distinct populations of students and tailor course offerings accordingly. For example, guided pathways leaders at

Northeast Wisconsin Technical College were initially concerned that students enrolled in adult basic education programs would struggle with the transition to virtual instruction. However, these students were as successful in online courses as they had been in in-person courses, a positive trend that pathways leaders attributed to flexible scheduling.

And yet, what works for adult students might not work for younger students. Despite San Jacinto College's steady progress over the past 10 years in decreasing the number of students enrolled in developmental education, the number increased by 46% during the 2021-22 academic year, requiring the college to move some instructors from college-level courses to corequisite developmental courses. In large part, the increase in students in developmental education was driven by students entering the college directly from high school. Guided pathways leaders viewed this dramatic increase as a direct result of high schools' struggles to provide the same level of preparation and support for students in an online environment as in an in-person setting.

Enhanced Support for Nonacademic Needs

Attention to students' basic needs was increasing prior to the pandemic, but the pandemic compelled colleges to place a new emphasis on understanding and addressing the nonacademic barriers that limit student access and success. AACC Pathways college leaders talked about becoming more aware of inequities and more understanding of the role that life challenges play in academic success. In addition to basic needs—such as food and housing, mental health, and transportation—that were already being discussed widely in higher education before the pandemic, access to technology and to work and study spaces emerged as a key issue.

Many of the colleges created loaner programs for laptops and Wi-Fi hotspots and extended campus Wi-Fi to parking lots, and they also responded in broader ways. Bakersfield College conducted several surveys revealing that significant numbers of students were struggling with food and housing insecurity, mental health, unemployment, and technological challenges. In response, the college expanded its support of students' basic needs through the establishment of the Renegade Nexus. Operated through the Office of Student Life, the Renegade Nexus assists students with CalFresh (SNAP) applications, food insecurity, housing referrals, transportation assistance, technology tools, and referrals to other services. At Zane State College, a team of staff members contacted every student weekly during the height of the pandemic and maintained a spreadsheet to track requests for help and follow-up assistance.

By all accounts, the heightened awareness of students' nonacademic needs is likely to have a lasting impact on how the colleges think about student success and support. A guided pathways leader at Tallahassee Community College commented that the college probably should have been doing more to address issues like food insecurity all along and plans to continue these efforts. Demonstrating how understandings of the scope of students' needs have changed, Indian River State College began remodeling rooms in the library and the academic support center to provide more quiet spaces after learning how many students lacked access to private study space where they live.

Trends in Guided Pathways Adoption and Outcomes

While the AACC Pathways colleges have clearly made considerable changes in practice following the guided pathways model, even in the wake of the pandemic, an important question for the colleges and for the field generally is whether student outcomes are improving at colleges that have adopted reforms. As noted earlier, CCRC used the Scale of Adoption Assessment (SOAA) to measure the self-reported progress of the colleges in scaling guided pathways practices. We also collected longitudinal data from each college on early momentum metrics (EMMs), which are leading indicators of longer term success by students. In this section, we use data from the SOAA to report on the extent to which the colleges have adopted an integrated set of scaled guided pathways practices. We then examine trends in key EMMs across the colleges to gauge whether colleges that adopted a more fully integrated version of the guided pathways model showed greater improvements in EMMs for students than colleges that adopted and scaled only some portions of the model. We look at EMMs for students generally and for students disaggregated by race/ethnicity. Our analysis is purely descriptive. Because we lack a comparison group of colleges, we cannot estimate the value added (i.e., the impact) of adopting guided pathways practices over business-as-usual circumstances.

At the outset of the AACC Pathways Project, the 30 participating colleges committed to "significant institution-wide change to implement guided pathways reforms *at scale* for all credit students." As we discuss in this section, more than two thirds of the colleges have either achieved this goal or made significant progress toward achieving it. Moreover, compared to colleges that were still scaling most practices, colleges that more fully adopted the guided pathways model show more promising trends in EMMs for students across all groups. Nonetheless, most colleges still have substantial gaps in EMMs between racial/ethnic groups.

Adoption of a Fully Integrated Set of Practices

A central premise of the guided pathways theory of change, described in CCRC's book, *Redesigning America's Community Colleges* (Bailey et al., 2015), is that discrete interventions focused on one group of students or one phase of the student experience are not sufficient to produce significant improvements in student success. Instead, colleges need to redesign practices, processes, and systems *at scale* across students' entire journey through college in an aligned and coordinated fashion to change students' experience in ways that help them explore interests and options and choose, plan, and complete a program of study in a field of interest. We refer to this as the fully integrated guided pathways model.

To determine which colleges have adopted a more fully integrated model, we identified practices in the SOAA that, based on our research (Jenkins et al., 2023), we consider critical for improving student outcomes:

1. Organizing programs into meta-majors.
2. Mapping transfer and workforce programs, including course sequences.
3. Enabling all entering students to explore career and program options.
4. Assisting students to create a full-program educational plan by the end of their first term.
5. Replacing prerequisite remediation with a corequisite approach for most students.
6. Developing field-aligned math pathways.
7. Implementing case management advising with advisors assigned to particular fields or meta-majors.

Based on analysis of our latest SOAA and college interview data, as of spring 2022, 11 of the 30 AACC Pathways colleges had adopted these practices at scale. Another 12 were in the process of scaling adoption of these practices, with most on track to implement them by the 2022-23 academic year. Six others had taken steps to redesign onboarding but had not scaled corequisite support in math with math pathways. Only one college, where the leadership was unsuccessful in convincing faculty and others of the value of guided pathways, had not meaningfully reformed or scaled college practices.

Trends in EMMs Across AACC Pathways Colleges

CCRC has collected EMM data annually from the colleges since the project began in 2016. The purpose is to provide the colleges and initiative leaders with data they can use to conduct formative evaluations of guided pathways reforms. There are 14 AACC Pathways EMMs grouped into four categories, as shown in the table below. (Note that the EMMs listed are for semester-based colleges. CCRC developed comparable EMMs for quarter-system colleges.)

Table 2. Early Momentum Metrics (EMMs) for AACC Pathways Colleges

Credit Momentum EMMs	College Course Completion EMMs	Gateway Math and English Completion EMMs	Persistence EMM
• Earned 6+ college credits in term 1 • Earned 12+ college credits in term 1 • Earned 15+ college credits in year 1 • Earned 24+ college credits in year 1 • Earned 30+ college credits in year 1 • Attempted 15+ credits (developmental or college level) in term 1 • Attempted 30+ credits (developmental or college level) in year 1	• College-level course completion rate in students' first academic year • Average college credits attempted in year 1 • Average college credits completed in year 1	• Completed college math in year 1 • Completed college English in year 1 • Completed both college math and college English in year 1	• Persisted from term 1 to term 2

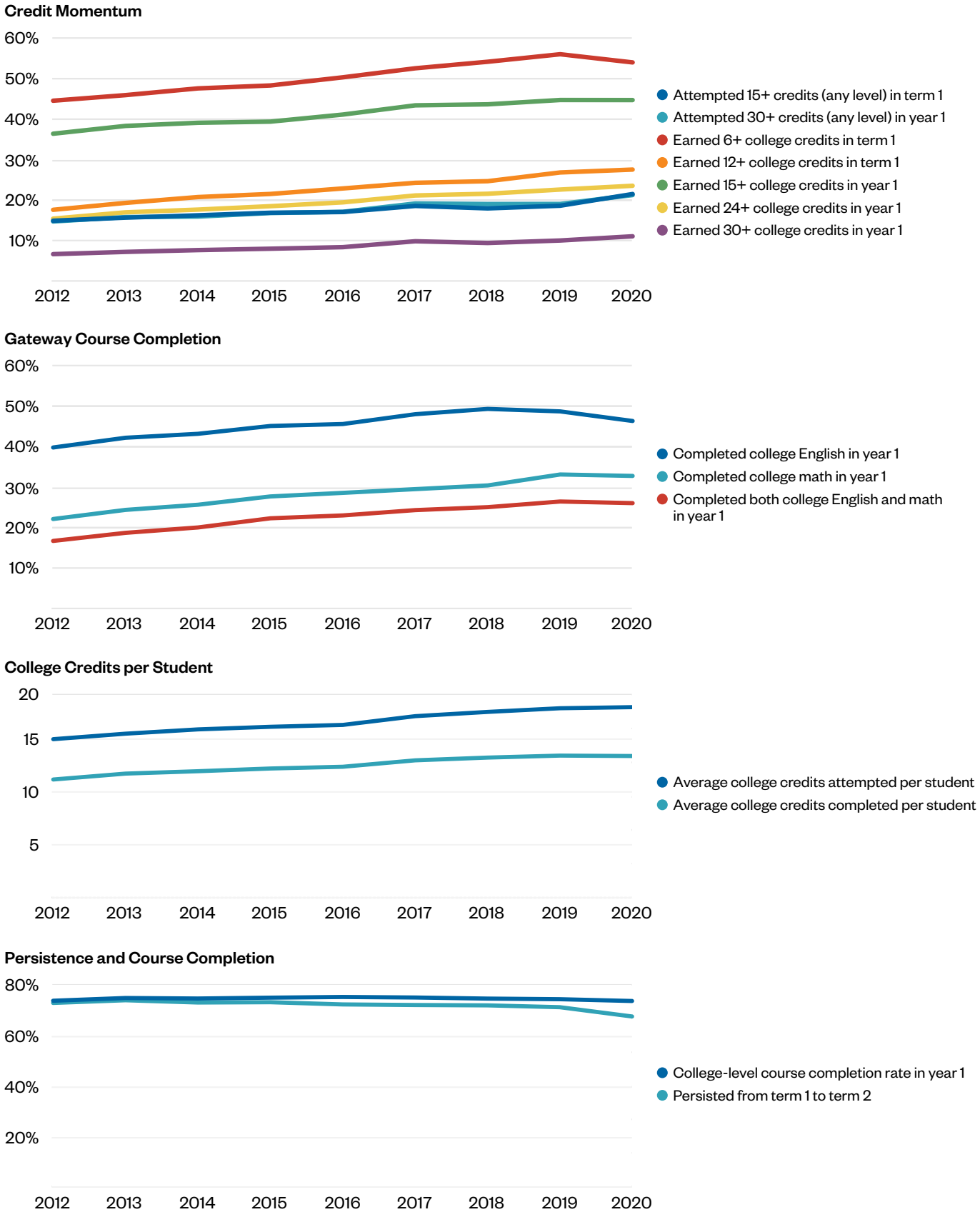
The EMMs measure outcomes in the first year for students who are new to higher education in the sense that they have no previous college experience or credits, including from dual enrollment courses in high school. Attrition rates among first-time-in-college (FTIC) students in community colleges are high, particularly among students from underserved groups. Nationally, over 40% of students who start college at a community college do not return for a second year, and attrition rates for students of color and low-income students are substantially higher (NSCRC, 2022). To improve first-year momentum and persistence among these students, their experience would have to be changed in fundamental ways.

Research by CCRC and others indicate that these EMMs are correlated with longer term community college credential and transfer success for students generally (Belfield et al., 2019), with especially strong benefits for students of color and low-income students (Lin et al., 2020). Thus, year-over-year improvements in such metrics can serve as leading indicators that more students will likely succeed in the longer term. EMMs are distinct from metrics such as the IPEDS 150% graduation rate, which takes three years to measure and is based only on cohorts of first-time, full-time students and therefore excludes part-time students, who comprise the majority of enrolled students in most community colleges. EMMs are thus useful for measuring in the near term the likely longer term effects of guided pathways reforms for credit students generally at a college.

Because the EMMs are based on one-year outcomes for cohorts of all FTIC students in a credit program (including full- and part-time students but excluding dual enrollment students and those with prior college credits), moving the needle on these metrics requires improvements in the experience of large numbers of entering students, not just those who might benefit from targeted interventions.

CCRC collected one-year EMMs on cohorts of FTIC students at each college who enrolled in fall 2012 through fall 2020, making it possible to examine year-over-year trends for each college in the period before and after the first AACC Pathways Institute in early 2016. Figure 1 shows the trends in the average rates of all 14 of the EMMs (grouped into four categories) that we tracked across the 29 AACC Pathways colleges that committed to implementing guided pathways from academic years 2012-13 to 2020-21.[1] Note that we include data for 2020-21 even though colleges were challenged by the COVID-19 pandemic. We do this because all colleges faced a similar shock from the pandemic, and colleges have told us that guided pathways practices equipped them—or would have equipped them—to deal with the challenges created by it.

Figure 1. Trends in EMMs Across AACC Pathways Colleges, 2012 to 2020 Fall Cohorts



While the trends for specific colleges varied, the average rates for EMMs in the Credit Momentum, Gateway Course Completion, and College Credits per Student categories all increased from the 2012-13 academic year to the 2020-21 academic year, although the averages for the "Earned 6+ college credits in term 1" and "Completed college English in year 1" metrics dipped in 2020-21, most likely due to the pandemic. Average course completion rates remained steady during that period, although term-to-term persistence declined slightly and then dipped more during the pandemic.

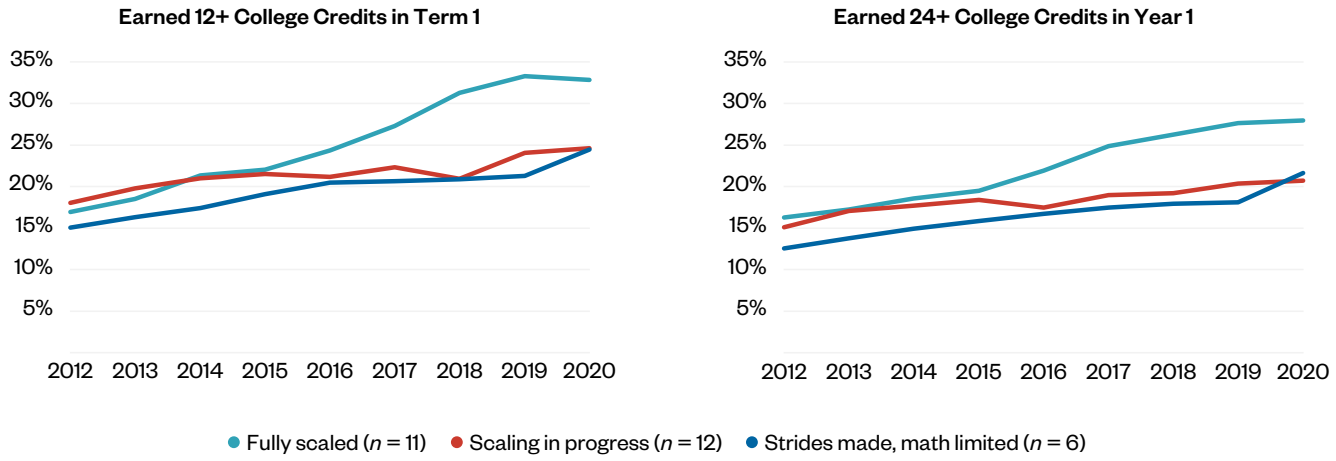
Given the guided pathways theory of change, which holds that colleges need to implement a set of complementary, aligned practices across the student experience to improve outcomes, we would hypothesize that, compared to colleges still in the process of adopting guided pathways reforms at scale, colleges that have adopted the more fully integrated guided pathways model would see greater increases in EMMs after 2016, when the colleges started the initiative.

Trends in EMMs Across Three Groups of AACC Pathways Colleges

In the following, we compare trends in key EMMs among three groups of AACC Pathways colleges: (1) "fully scaled" colleges—those that had implemented the more fully integrated guided pathways model by spring 2022; (2) "scaling-in-process" colleges—those that were still in the process of scaling the model; and (3) "strides made, math limited" colleges—those that made progress but had not yet implemented corequisite developmental mathematics with math pathways to help students complete college-level math within their first year.

Figure 2 shows average trends for these groups of colleges in the "Earned 12+ credits in term 1" and "Earned 24+ credits in year 1" EMMs. Both metrics are important given research showing that many students stop out by the end of the first term and that earning a substantial number of credits in the first year is positively associated with student success (especially among students of color). If students can complete at least 24 college-level (i.e., non-developmental) semester-hour credits in their first year, they are on schedule to complete an associate degree in three years (and a bachelor's degree in six). Colleges can enable students who are attending part-time to take 24 credits in a year if they include summer terms. Students could take 12 credits in the fall and 12 in the spring; 12 credits in the fall, 9 in the spring, and 3 in the summer; 9 credits in the fall, 9 in the spring, and 6 in the summer; or another combination thereof.

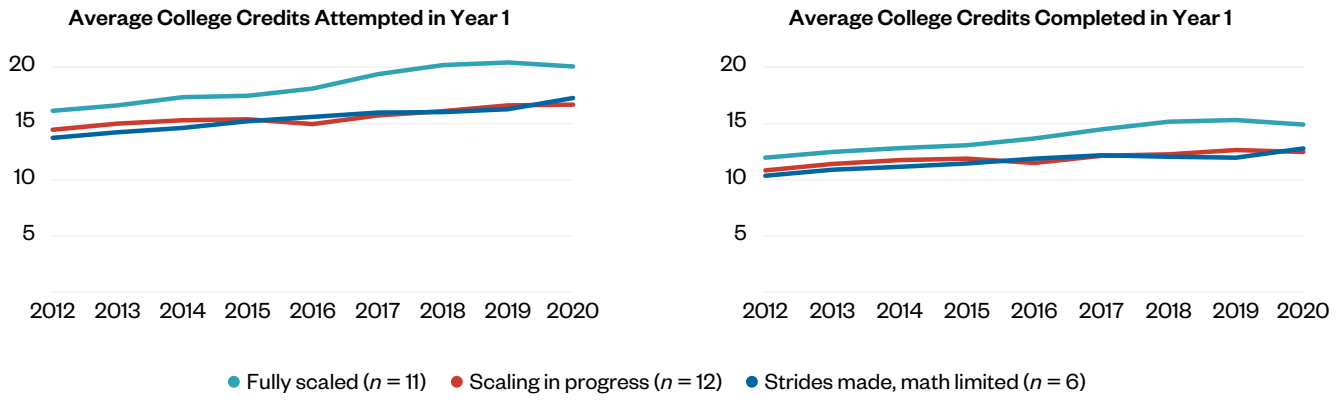
Figure 2. Trends in Meeting College Credit Thresholds in Term 1 and Year 1 by College Group



For both credit momentum EMMs, we see that the trend lines for the 11 "fully scaled" colleges diverge from those for the other two groups of colleges starting in 2016 and continue to increase at a higher rate. This is promising because it is consistent with what we would hypothesize for colleges that are further along in redesigning onboarding practices and are thus able to align them to help entering students earn more credits in their first year.

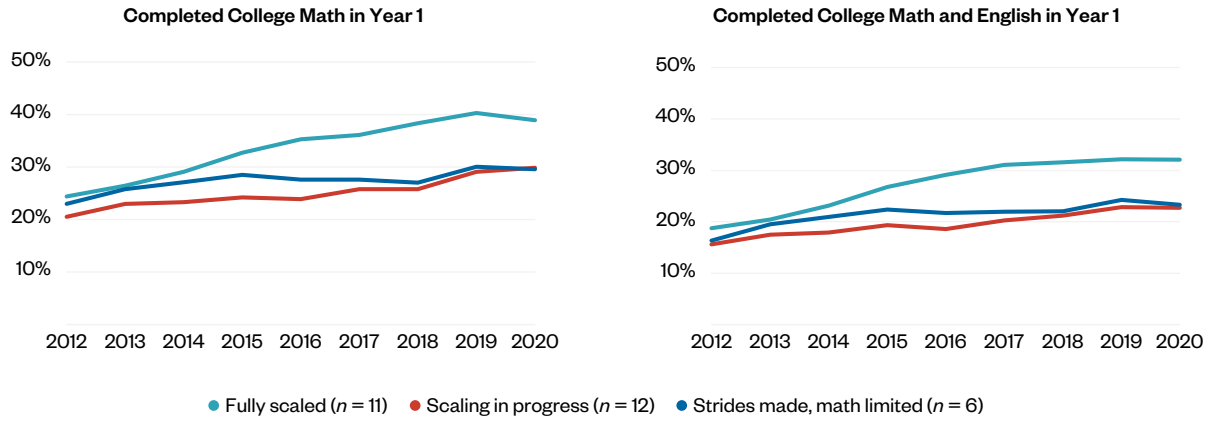
Given this finding on credit momentum, it is unsurprising that, as Figure 3 shows, colleges that had scaled the more fully integrated model also saw greater increases in the average number of college-level credits attempted and completed in students' first year.

Figure 3. Trends in College Credits Attempted and Earned in Year 1 by College Group



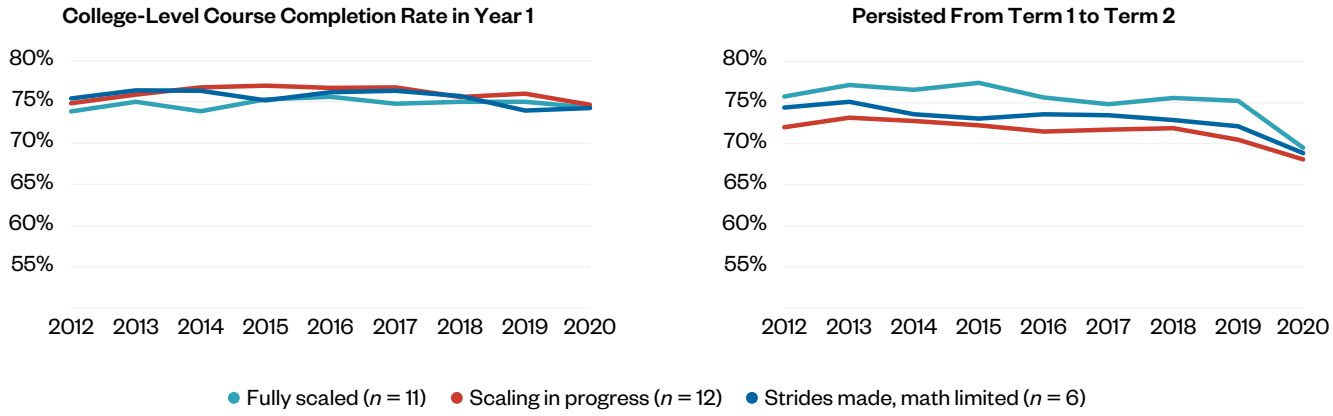
We see a similar pattern in Figure 4, which shows the trends in average rates at which students complete college math and complete both college math and English in their first year. These EMMs are important because college-level math and English are required for virtually all college degree programs. Moreover, research has shown that failing math impedes momentum in a college-level program of study for many students, particularly those from underserved groups (Scott-Clayton & Rodriguez, 2015).

Figure 4. Trends in College Math and College Math and English Completion in Year 1 by College Group



The two EMMs for which we do not see positive differences in trends for "fully scaled" colleges versus those that were still in progress are the college-level course completion rate and the rate of persistence from term 1 to term 2 (see Figure 5). The former is less problematic because it suggests that the "fully scaled" colleges did not achieve higher credit momentum by making it easier to pass courses. The finding for persistence is more concerning because of research showing the importance for completion of continuous enrollment without stopping out (Crosta, 2014). Figure 5 shows that persistence rates declined for all three groups of colleges, regardless of their progress in adopting guided pathways practices. This may in part be due to the COVID-19 pandemic, which led to steep declines in community college enrollments starting in the 2019-20 academic year (Brock & Diwa, 2021).

Figure 5. Trends in College Course Completion in Year 1 and in Persistence From Term 1 to Term 2 by College Group



Trends in EMMs by Race/Ethnicity

When we disaggregate EMM trends for the three groups of colleges by race/ethnicity, we see that compared to students in the other college groups, average EMM rates for all student racial/ethnic groups in the "fully scaled" college group increased more rapidly

(i.e., with a steeper slope) than in the other college groups in the period after 2016, consistent with the overall trends for the three college groups. However, gaps between racial/ethnic groups remain for the "fully scaled" colleges. In other words, even though we observe a greater rate of improvement in EMMs across all student groups among the colleges that more fully scaled the guided pathways model, these colleges have not closed equity gaps.

This pattern is evident in comparisons of the trends by race/ethnicity between the "fully scaled" colleges compared to the "scaling-in-progress" colleges for the following EMMs: "Earned 12+ college credits in term 1" (Figure 6), "Earned 24+ college credits in year 1" (Figure 7), and "Completed college math in year 1" (Figure 8).

Figure 6. Trends in "Earned 12+ College Credits in Term 1" by Race/Ethnicity: Two College Groups Compared

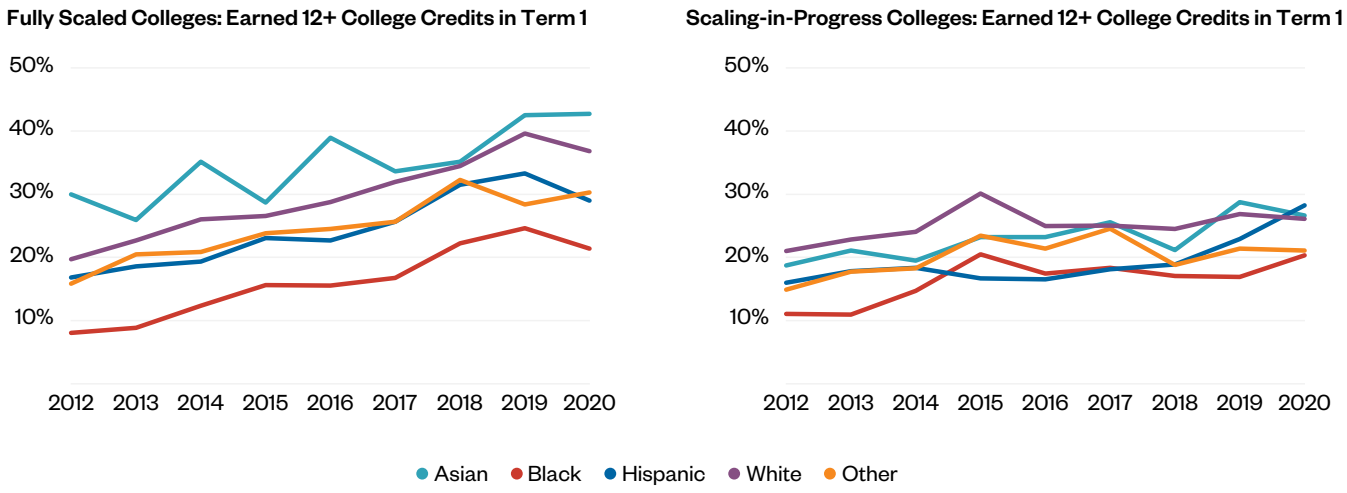


Figure 7. Trends in "Earned 24+ College Credits in Year 1" by Race/Ethnicity: Two College Groups Compared

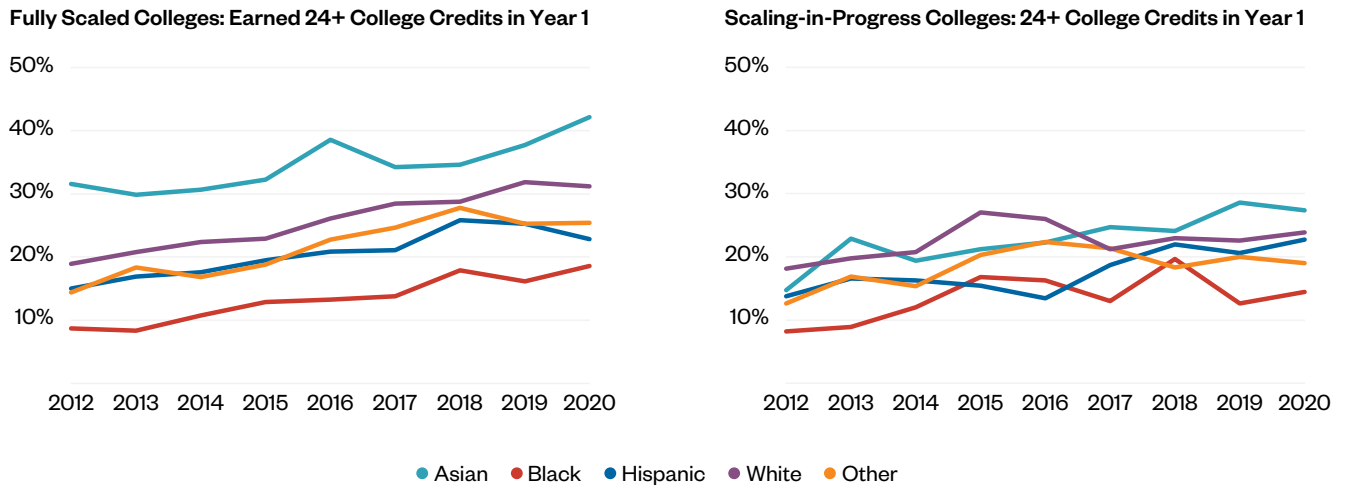
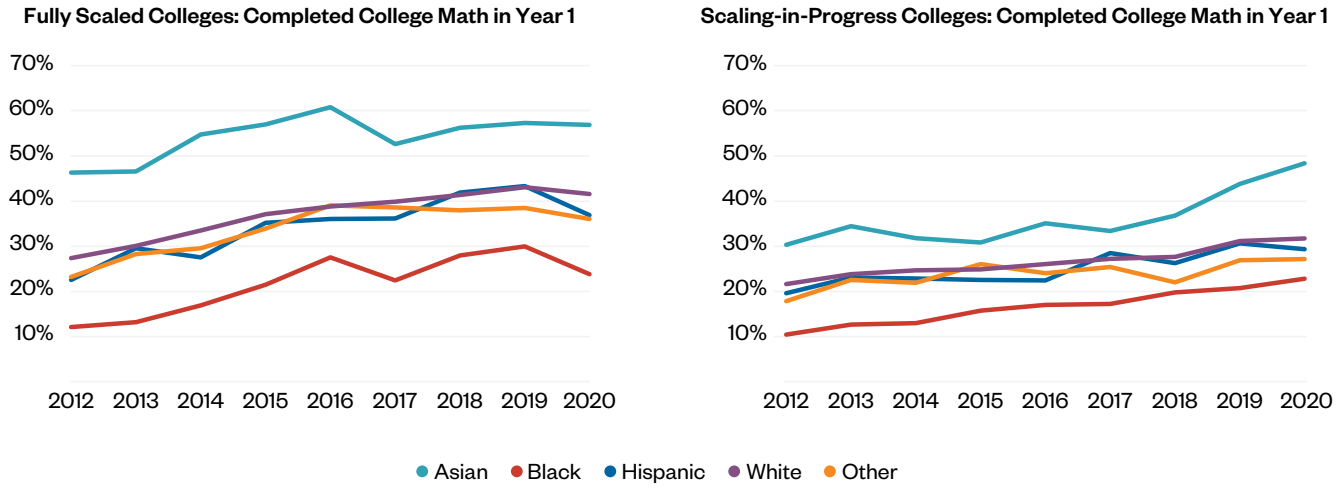


Figure 8. Trends in "Completed College Math in Year 1" by Race/Ethnicity: Two College Groups Compared



Discussion of Early Momentum Findings

As noted earlier, the trends we show above are purely descriptive. Because we asked the colleges to share aggregated data on EMMs (for students generally and by subgroups) rather than student unit record data, we were not able to control for student characteristics or other factors in our examination. Nor could we conduct an interrupted time series or other quasi-experimental analysis that might allow us to draw inferences about the causal effects of guided pathways reforms.

Nevertheless, these findings are consistent with the idea that improving the trajectory of student outcomes requires colleges to implement a set of complementary practices that change the experience for all students, not just particular groups, across their college journey. The idea that reforms must involve the transformation of college practices at scale in order to be effective at scale is supported by previous research on effective community colleges (Jenkins, 2007) and universities (Kuh et al., 2005). Studies of organizational effectiveness in K-12 schools (Bryk et al., 2010) and private sector enterprises (Collins & Porras, 1994) have reached a similar conclusion: Organizational innovations have the greatest effect on performance when they are implemented at scale and in concert with one another and when they are well aligned to achieve organizational goals.

The relatively flat outcomes among the six AACC Pathways colleges that had not yet scaled corequisite remediation in math is not surprising, since research has demonstrated that prerequisite developmental math is a barrier to gaining momentum in a college program of study for students generally and for students from underserved groups in particular (Bickerstaff et al., 2022; Scott-Clayton & Rodriquez, 2023). At the same time, the fact that the 12 "scaling-in-progress" colleges, which had implemented corequisite reform at scale, did not achieve as strong improvements in credit momentum and other EMMs as the "fully scaled" colleges did suggests that implementing corequisite reform is not sufficient to increase student outcomes in

courses beyond math and English composition. This is consistent with Ran and Lin's (2022) study of the effects of scaling corequisite remediation across all 13 community colleges in Tennessee. They found that while corequisite remediation with math pathways implemented at scale substantially improved the rate at which students took and passed college-level math in their first year (with similar effects for English composition and reading), it did not improve the rates at which students earned college-level credits overall.

Ran and Lin (2022) also found that the main benefit of corequisite mathematics was due less to the added academic support than to the fact that students (1) were placed directly into college-level courses and (2) were guided to take math aligned with their program of interest. The latter finding suggests a possible reason that the "fully scaled" AACC Pathways colleges were able to achieve, on average, larger increases in the rate at which students passed college math in their first year than the "scaling-in-progress" colleges (see Figure 4). For students to be referred to a math sequence that is aligned with their field of interest, colleges must have a mechanism in place both to help students identify a field of study and to advise them to take the appropriate courses. Presumably, the "fully scaled" colleges had implemented more robustly than their "scaling-in-progress" counterparts a program onboarding process to help new students choose a program direction and take the most appropriate math for that direction.

Encouragingly, the "fully scaled" colleges also had marked improvements in the rates of early college credit accumulation and of passing college math and English composition in the first year across student racial/ethnic groups. However, there was no narrowing of gaps in EMMs *between* racial/ethnic groups, particularly Asian and White students as compared to Black and Hispanic students. We saw similar patterns in analysis of EMMs in the Tennessee community colleges, which as a system were the first to adopt guided-pathways-like practices (Jenkins et al., 2018).

This finding reinforces the idea that guided pathways is not sufficient to address equity gaps, which we have heard repeatedly from colleges further along in their implementation. In our research on guided pathways, we have seen the need to customize or personalize the practices according to the needs and circumstances of particular groups of students (Klempin & Lahr, 2021a, 2021b). Put differently, even with guided pathways, colleges must still make targeted efforts to support increased success of first-generation students, students of color, veterans, students with disabilities, older returning students, and other groups with special needs. Indeed, early adopter colleges that have seen improvements for students overall are now scrutinizing the reforms they have made through an equity lens to ensure that these practices do not reinforce tracking by race/ethnicity, income, gender, and other factors.

The roots of equity gaps between student groups by race/ethnicity and family income in particular are complex and include inequitable access to well-resourced primary and secondary education. This realization has spurred some colleges to extend guided pathways practices to underserved students in K-12 by, among other strategies, rethinking dual enrollment as an on-ramp to college programs of study for high school students, an approach we call dual enrollment equity pathways (DEEP) (Fink et al., 2022).

The fact that we did not see improvements in student course success rates across the three college groups is consistent with the finding from our implementation research that even colleges further along in scaling guided pathways reforms have not done much to systematically strengthen pedagogy in courses outside of math and English. As we note below, strengthening active and experiential learning in program foundation courses and throughout programs is a key next step in the guided pathways reform movement.

Conclusion: New Frontiers for a Tested Reform Model

The experiences of the AACC Pathways colleges over the last seven years have taught us a great deal about how change happens within community colleges, what is possible, what helps and what hinders reform at scale, and how colleges continue to innovate in the face of unprecedented challenges. As described in the second section of this report, the colleges have adopted many guided pathways practices at scale and are continuing to scale additional reforms focused on onboarding, advising, and teaching and learning within programs. We are encouraged that among colleges further along in adopting an integrated set of guided pathways practices at scale, there are greater increases in student early momentum metrics than there are among colleges less further along. The next frontier for many of the AACC Pathways colleges includes scaling experiential learning in programs in workforce and transfer programs, creating stronger pathways between adult basic education programs and dual enrollment and college programs of study, and ensuring that onboarding activities are helping students explore and choose a program aligned with their interests and aspirations.

While leadership provided a source of stability for many colleges in the AACC Pathways Project, the COVID-19 pandemic was a shock to all the colleges. On the one hand, it spurred rapid innovations in online teaching and learning and in student support, some of which may not have occurred otherwise and certainly not on such a widespread scale. These innovations have benefited students by offering them greater flexibility and access to resources as well as increased support for basic needs; many of these innovations are likely to have lasting impacts on how colleges operate. On the other hand, the pandemic forced colleges to suspend implementation of some of their guided pathways work. And yet, many colleges are now resuming this work because they recognize that the reforms helped them serve students during the pandemic and will continue to do so in the deeply challenging post-pandemic environment.

Finally, in many ways, the pandemic proved to be a testing ground for the guided pathways model itself. Guided pathways reforms at the AACC Pathways colleges—especially case management advising by meta-major and change management strategies and processes that supported communication and collaboration—played a critical role in responding to the pandemic. This underscores the extent to which guided pathways can provide a framework for improving how community colleges support student success.

Endnotes

1. We excluded the 30th college from our EMM analysis because, as we stated earlier, this college did not succeed in getting faculty and others to commit to implementing guided pathways reforms.

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