How to Achieve More Equitable Community College Student Outcomes

Lessons From Six Years of CCRC Research on Guided Pathways

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The Community College Research Center (CCRC), Teachers College, Columbia University, has been a leader in the field of community college research and reform for over 20 years. Our work provides a foundation for innovations in policy and practice that help give every community college student the best chance of success.

Introduction

CCRC's 2015 book *Redesigning America's Community Colleges: A Clearer Path to Student Success* (Bailey et al., 2015) catalyzed a national community college reform movement. Since its publication, hundreds of community colleges have sought to implement whole-college reforms using the guided pathways model outlined in the book, either on their own or as part of a national or state initiative. CCRC has studied the adoption, implementation, costs, and effects of these reforms at over 100 colleges and interacted with thousands of practitioners implementing guided pathways through institutes, webinars, and workshops. In the process, we have deepened our understanding of how community colleges can improve students' experiences and outcomes and advance educational equity through guided pathways reforms.

In this report, we describe how CCRC's thinking about guided pathways has evolved in five areas: program organization and design, new student onboarding, remediation and academic support, ongoing student advising, and teaching and learning. For each area, we discuss what we have learned from studying the implementation of guided pathways at colleges across the country, parts of the model that were underemphasized or mainly theoretical in 2015, and practices that research suggests are critical to achieving more equitable student outcomes and ensuring community colleges' survival in a post-COVID environment. A summary of these advances in our thinking is shown in Table 1.

Table 1.

How CCRC's Thinking About Guided Pathways Has Evolved

AREA OF PRACTICE	*REDESIGNING AMERICA'S CCs*	CURRENT THINKING
Program organization and design	Organize programs into meta-majors and create default program maps for students	Build academic and career communities and make sure every student has an individualized educational plan
New student onboarding	Ensure new students receive career and transfer information and advising	Ensure new students participate in guided exploration to choose a pathway of interest, and help them make connections with other students and faculty in academic and career communities
Remediation and academic support	Use multiple measures to place students into appropriate developmental or college-level courses and provide corequisite remediation when possible	Teach students to be effective college learners in college-level program foundation courses (not just math and English)
Ongoing student advising	Provide holistic wraparound advising and other supports	Provide case-management advising by meta-major and use students' educational plans to schedule classes and monitor progress
Teaching and learning	Establish program learning outcomes and promote faculty development through collaborative inquiry	Embed active and experiential learning in all programs

Program Organization and Design

What We Said Back Then

A core argument advanced in *Redesigning* was that the prevailing community college education model, which emerged in the 1960s and 1970s, was creating barriers to student success. Community colleges were originally designed to maximize postsecondary access and enrollment by offering a wide variety of courses to suit different interests and needs. This cafeteria-style model, however, made it challenging for students to complete programs of study that enabled them to achieve their goals for employment and further education, as they faced "a complex and often bewildering choice of courses and programs" (Bailey et al., 2015, p. 52; see also Scott-Clayton, 2011).

Redesigning urged colleges to use choice architecture to simplify the decision-making process for students. By mapping out academic programs, guiding undecided students to choose a broad field of interest (or *meta-major*) to help clarify their interests, and providing students with default course maps for every program, colleges could "minimize student confusion over the many choices available to them and thus reduce the mistakes that students make while navigating college" (p. 33).

Our Current Thinking

Guided pathways was never about limiting options—it's about ensuring all students have access to clearly designed programs of study aligned with their interests and aspirations.

While Bailey et al. were careful to note that the intent of the guided pathways model was not to "restrict students' options" but to "help students make better decisions without limiting their options" (p. 16), it was often seen as limiting students' ability to explore their interests. Some college leaders saw the suggestion to reduce decision-making burdens as an opportunity to cut programs and courses, even when that was not called for educationally. Faculty in those colleges rightly criticized this approach for limiting students' options (Jenkins et al., 2017).

Reforms to program structure in the guided pathways model are intended to help students enter a high-opportunity program—one that leads directly to a career-path job or transfer to a four-year college with junior standing in a field of interest to them. Colleges should backward-map all programs, starting with the learning requirements of good jobs in fields of economic importance to

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Unpacking Program Enrollments and Completions With Equity in Mind

John Fink & Davis Jenkins (2020)

This guide outlines a series of data exercises colleges can undertake to examine which students are enrolling in and completing particular programs, what opportunities those programs lead to, and whether student representation across programs is equitable. Without disaggregating program enrollments with an eye to what those programs lead to— and interrogating and redesigning practices and policies that perpetuate inequities— student success reform approaches such as guided pathways may well reinforce rather than reduce existing racial/ethnic, gender, and socioeconomic stratification.

their communities and further education needed for career advancement. To ensure outcomes are equitable, colleges should examine whether particular groups are underrepresented in high-opportunity programs (see Fink & Jenkins, 2020). Guided pathways reforms will not advance equity if they merely lead to increased completion of college credentials per se; they will only do so if they enable underserved students to complete programs aligned with their career and educational interests and aspirations.

> While colleges and other social institutions need to make many changes to address inequities in educational access and attainment, the central equity focus of guided pathways is ensuring that students who have been poorly served by our education system are supported to explore their interests, gain confidence as college learners, connect with academic and career communities, and plan and complete a *high-opportunity program*—one that enables them to secure a good job or transfer to a four-year college in a field of interest upon completion—as efficiently and affordably as possible.

Meta-majors and program maps should be used to reshape the student experience.

Most guided pathways colleges have spent substantial time organizing programs into meta-majors and creating program maps. These are important steps in that they clarify information about program offerings and requirements. Program mapping also has the advantage of bringing together faculty and staff who typically do not interact to examine students' experiences getting into and through programs. However, many colleges have gotten hung up on trying to create the perfect maps for every student situation. Others have focused primarily on these more structural aspects of the guided pathways framework rather than using program maps to reshape the student experience.

In *Redesigning*, Bailey et al. (citing Kegan & Lahey, 2009) noted that "when given the choice between a cut-and-dried technical issue versus a complex and emotionally challenging adaptive issue, a group's focus invariably defaults to the technical issue, because it seems more manageable" (p. 152). This tendency to gravitate toward technical problems may explain why some colleges have gotten stuck on program mapping rather than contending with the larger, adaptive challenge of improving students' experiences and success in their programs.

Colleges should keep in mind that meta-majors and program maps are most useful when they provide a structure for other changes to the student experience. For example, some colleges have used meta-majors to create a more personalized onboarding experience for students based on their field of interest (Klempin & Lahr, 2021b). Many are also using program maps to help students develop individualized educational plans. And once colleges have all students on a full-program plan, they can more easily schedule the courses students need to advance, monitor students' progress, and intervene when students deviate from their plans. In these ways, program mapping not only clarifies students' decision-making but also facilitates broader improvements in how they move through the college.

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Meta-majors and program maps should break down conventional program divisions.

In developing meta-majors and clarifying program pathways, colleges and students benefit most when career-technical and transfer-oriented programs are organized under the same field. Some colleges, rather than housing transfer-oriented programs under their respective fields, such as social and behavioral sciences, arts and humanities, or STEM, have created a separate meta-major for transfer programs, often labeled "liberal arts" (Jenkins et al., 2017). This poses several problems.

For transfer-aspiring students, the conventional advice to "get your gen eds out of the way" too often leads them to take credits they cannot apply toward a bachelor's degree in their chosen field (Fink et al., 2018), which discourages them from completing their programs (Monaghan & Attewell, 2015). Research suggests students are more likely to transfer and earn a bachelor's degree without excess credits if they follow a more structured pre-major curriculum that guides them to take the right lower-division courses for their major field (Baker, 2016; Washington State Board for Community and Technical Colleges, 2014).

Furthermore, organizing career-technical and transfer-oriented programs separately restricts the ability of students in career-technical programs to progress to further education—which restricts their ability to access good jobs (defined by Carnevale et al., 2018, as those that pay at least $35,000 annually for younger workers). The majority of good jobs are held by workers with a bachelor's degree or higher, and most workers in good jobs without a bachelor's degree have an associate degree rather than just an occupational certificate (Carnevale et al., 2018). Despite the buzz around "stackable credentials," too few community college students who earn a certificate go on to earn an associate degree, much less a bachelor's degree (Bailey & Belfield, 2017). Rather than relying on students to stack their credentials, some colleges are embedding certificates and other skills training into larger degree programs (Community College Research Center, 2021b).

Advanced adopters of guided pathways have organized both career-technical and transfer-oriented credit programs by meta-major. In some cases, they have also subsumed noncredit workforce training programs under meta-majors, or at least created bridges from these and adult basic education programs to credit programs (Jenkins et al., 2018). Easing the transition between noncredit and credit programs not only benefits students but also creates opportunities for community colleges to recruit students into their credit programs (Community College Research Center, 2021a; Klempin & Lahr, 2021a), which is particularly important in light of enrollment declines at community colleges during the COVID-19 pandemic (Belfield & Brock, 2021).

Easing the transition between noncredit and credit programs not only benefits students but also creates opportunities for community colleges to recruit students into their credit programs.

Essential Practices for Colleges

- Backward-map all programs to ensure they prepare students for good jobs or transfer with junior standing in their major field of study.

- Organize all programs—career-technical and baccalaureate transfer, credit and noncredit—by meta-major. Meta-majors can then be used as a framework for creating academic and career communities that promote engagement and provide networking and advancement opportunities for students in their chosen field.

- Examine program enrollments to identify which students are not currently in a program that clearly leads to employment or transfer in their field of interest, and work to ensure that every student gets the support they need to enter and complete such a program.

New Student Onboarding

What We Said Back Then

Redesigning argued that student intake in the cafeteria college model is too narrowly focused on orienting students to college procedures and systems, determining whether they need remediation, and registering them for first-term classes. In this model, little if any time is spent discussing students' interests, strengths, and goals to help them choose a program. Bailey et al. urged colleges to provide entering students better information on programs, including career and transfer outcomes, and require them to choose a meta-major early on. They also emphasized the utility of helping students explore their career interests in student success courses.

In line with these ideas, most of the guided pathways colleges we have studied have redesigned their websites to provide better information on programs and taken steps to help students without clear goals explore their interests using career assessments and planning tools. In many cases, colleges are also building career and academic exploration and planning into first-year experience courses.

Our Current Thinking

Providing career and academic program information is necessary but not sufficient for helping students find a program that is a good fit.

Community colleges' efforts to provide better career and transfer information to students up front and to help all entering students develop career and college plans represent a clear departure from past practices, and these changes appear to be improving the college experience for many new students (Center for Community College Student Engagement, 2020). However, giving entering students better information and career and transfer advising is not enough to help them define their path. The process by which students explore and choose an academic and career field is a developmental one that often plays out over multiple terms (Bailey et al., 2016).

Colleges need to redesign the entire student onboarding experience—from application to program selection to completion of foundational program courses—around meta-majors to help all students explore their interests and options, choose at least a preliminary direction, and develop an academic plan (see Jenkins, Lahr, & Pellegrino, 2020, for a literature review and examples from colleges).

One essential part of the onboarding process is to have conversations with all entering students about what they are interested in, what they see as their strengths, and what they want to do with their lives. Some colleges ask students to indicate a field of interest on their application form and make career and program exploration a central focus of required meetings with advisors. Others have these conversations after students take mandatory career and academic interest assessments. Colleges use these conversations to determine how sure students are about their program choices and, importantly, to connect them to faculty, peers, and others in fields of interest.

New students need opportunities to connect to an academic and career community.

Research indicates that students benefit from connecting with faculty, peers, and alumni in a field of interest early on in their college experience (Tinto, 2012). Indeed, when asked what would help them choose a program area or major, entering community college students often say they want to talk to faculty or an advisor who knows the field (Kopko & Griffin, 2020).

To provide a more personalized onboarding experience, guided pathways colleges are organizing new student orientation by meta-major so students can meet faculty, existing students, and others in programs of interest to them (Klempin & Lahr, 2021b). In some colleges, first-year experience courses are also organized by meta-major. Additionally, faculty and staff at some colleges organize events during the school year where undecided students can learn about different fields and connect with faculty, advanced students, alumni, employers, and others in those fields.

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Redesigning Community College Student Onboarding Through Guided Pathways

Davis Jenkins, Hana Lahr, Lauren Pellegrino, Elizabeth Kopko, & Sarah Griffin (2020)

This three-part practitioner packet provides guidance to colleges seeking to redesign their new student onboarding practices to better help students explore, choose, and plan a program of study suited to their interests and aspirations. Part 1 reviews research on why the conventional community college approach to onboarding is often unsuccessful in helping students choose and plan a program, and it describes how colleges are rethinking this process as part of their guided pathways reforms. Part 2 presents findings from CCRC research on what students at two Florida colleges that were early adopters of guided pathways say about reformed onboarding practices at their campuses. Part 3 presents a series of discussion and planning activities for colleges seeking to redesign new student onboarding.

Students should be able to take courses on topics of interest from the start.

Gaining early momentum in college-level coursework is predictive of longer-term success, particularly for students of color and low-income students (Lin et al., 2020). Students benefit from taking courses early on in a field or topic of interest so they can determine for themselves: "Am I really interested in this field?" and "Am I good at it?" Often, community college students cannot take these courses in their first term because they must fulfill developmental prerequisites. Other times, students are advised to take general education courses early on to keep their options open. Both of these situations hinder students' progress toward a degree and their ability to set meaningful goals and develop an academic identity.

Research by Xueli Wang (2016) on community college to four-year college transfer pathways in STEM clearly demonstrates the importance of early coursetaking in a field of interest. Using data-mining techniques, Wang analyzed survey and transcript data from a nationally representative sample of baccalaureate-seeking community college students who took at least one college-level STEM course in their first term to identify which student characteristics and coursetaking patterns were associated with upward transfer in STEM. The most common early coursetaking pattern among STEM transfer students was taking a transferable STEM course in the first term and math courses in subsequent terms. This finding is noteworthy because community college students often must take math courses as prerequisites to courses in STEM and other math-intensive fields. It suggests that students should be advised to take courses on topics of interest from the start rather than deferring them to focus on other requirements that are less likely to engage and motivate them. Indeed, in developing program maps, faculty in colleges that are advanced in implementing guided pathways are creating a first-term experience that includes field-relevant coursework to help students see if they like the field and can succeed in foundational coursework for it.

Ensure that every student is helped to develop an individualized educational plan.

It is essential that every entering student is helped to develop at least a preliminary full-program educational plan aligned with their career and academic interests by the end of their first term. For undergraduate students, having clear learning goals and plans is associated with sustained motivation, better coping in the face of challenges, and higher completion rates (Grant & Dweck, 2003). Consequently, many guided pathways colleges have made first-year experience courses mandatory for all entering students and made career and college exploration and planning a central focus of these courses.

The costs of delaying planning are far greater than those associated with changing plans.

Students can, and some do, change their initial plans. But research indicates that early program choices do not hurt students' chances of completing their programs (Liu et al., 2021). The costs of delaying planning are far greater than those associated with changing plans. Without every student on a full-program plan, colleges cannot optimize their class schedules to offer the courses students need to advance toward completion, and they have limited ability to monitor students' progress and offer targeted support.

Onboarding experiences should be customized to meet the needs of different students.

The community college onboarding process has traditionally been designed for recent high school graduates who enroll full-time starting in the fall term. Many entering community college students do not fit this profile, however, and may need different supports to choose and plan a program of study. For example, older working students may have a clearer idea of what field they want to enter and need help developing a plan for efficient completion of a program in that field, whereas younger students may need more time and support to explore their interests and options.

Colleges implementing guided pathways have recognized that they need to do more to support students with different life experiences and goals in the process of exploring and choosing a program of study (see Klempin & Lahr, 2021a, on supporting adult students, and Mehl et al., 2020, on supporting high school dual enrollment students). Many are also instituting more flexible intake processes, particularly around orientation and advising, to accommodate students with competing obligations and those who enter the college at times other than the fall semester.

Essential Practices for Colleges

- Ask entering students about their interests, strengths, and goals, and connect them with faculty, existing students, alumni, employers, and others in fields of interest to them.
- Ensure that every student takes a well-taught college-level course on a topic of interest in their first term.
- Ensure that every student has at least a preliminary full-program educational plan by the end of their first term.
- Personalize onboarding experiences to meet the needs of diverse groups of students, such as younger students and older working students.

Remediation and Academic Support

What We Said Back Then

Redesigning devoted an entire chapter to challenges related to developmental education—a significant barrier to student progression and credential completion and a major focus of the community college reform agenda and research at the time. Bailey et al. reviewed the evidence on remedial assessment, curricula, and instruction, highlighting approaches that might enable developmental education to serve as an on-ramp to programs of study. Among the reforms they identified were using high school grades and other measures, rather than just standardized tests, to place entering students into developmental or college-level courses and mainstreaming most students into college-level math and English courses with corequisite academic support.

Our Current Thinking

Since *Redesigning*, the use of multiple measures and corequisite remediation has expanded, and several studies have found evidence that they enable more students to pass college-level math and English in their first year (see, e.g., Barnett et al., 2020; Cuellar Mejia et al., 2020; Logue et al., 2019; Logue et al., 2016; Miller et al., 2020; Ran & Lin 2019). However, these approaches are based on several assumptions that are not well supported by the research literature: that students can be divided into college-ready and not college-ready; that success in traditional math and English composition will ensure success in other coursework; and that community colleges should prioritize addressing entering students' deficits rather than helping them identify and build on their strengths. Our research and experiences in the field suggest that a more radical reconceptualization of academic support is needed to help students become effective learners in their programs of study. With that in mind, we offer the following observations.

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Offering academic support in conventional mathematics and English composition is not sufficient to prepare students to succeed in their programs.

While there is growing evidence that students who are assessed using multiple measures (especially high school grades) and who take corequisite remediation are more likely to take and pass college-level math and English composition, evidence is much more mixed regarding whether these courses prepare students to succeed in foundational courses in other subjects.

A 2012 CCRC study found that passing foundational program courses—such as Accounting 101, Chemistry 101, and Anatomy and Physiology—is as predictive of program completion as passing college-level courses in math and English (Zeidenberg et al., 2012). Similarly, as discussed above, Wang (2016) found that first-term coursetaking

in STEM followed by math courses in subsequent semesters was a common coursetaking pattern among students with longer-term success in STEM.

Other researchers have questioned the relevance of the decontextualized, abstract algebra that is commonly the focus of introductory community college mathematics, even in STEM fields such as biology, computer science, economics, and engineering (e.g., Dadgar et al., 2021). Given that college algebra often ends up serving a gatekeeping function instead of providing a foundation for upper-level disciplinary courses (Ganga & Mazzariello, 2018), a substantial number of colleges have adopted math pathways reforms, which enable students to fulfill their math requirements by taking courses aligned with their major (often allowing them to take statistics or quantitative reasoning courses instead of algebra). Rigorous research has found that such an approach can improve students' progression through developmental education and toward a degree (What Works Clearinghouse, 2021).

All of this suggests that instead of concentrating academic supports in developmental and college-level algebra and composition, colleges should be looking to enhance teaching academic support across the curriculum (Edgecombe & Bickerstaff, 2018).

Colleges should focus on helping all students become effective college learners in program foundation coursework.

Standards and expectations for learning in college differ meaningfully from those in high school (Karp, 2012). Rather than focusing on helping students assessed as needing developmental education to become college-ready, colleges should help all students understand the norms and expectations of college classes. Part of this means moving the focus of assessment from determining whether students are college-ready upon entry to using diagnostic tests in the classroom to identify areas where entering students need improvement. Then, frequent low-stakes assessments and feedback should be used to guide students' development as learners (Lahey, 2014).

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It also means that colleges should work with faculty teaching introductory courses to ensure that students are exposed to instructional methods that research on effective teaching and learning in high school and college indicates help to build confidence for learning (as discussed further below, under "Teaching and Learning"). This is especially important for students of color and low-income students, who are less likely than their more advantaged peers to have experienced good teaching (The New Teacher Project, 2018; Patrick et al., 2020). The conventional approach to remediation (even corequisite remediation) assumes that to be successful college learners, students need help developing academic skills in conventional high school mathematics and writing, when the evidence indicates instead that what students need—and what students poorly served by our education system too often lack—is good teaching on topics of interest to them.

We are encouraged, therefore, that colleges further along in implementing pathways reforms are giving greater attention to teaching in critical program courses. A growing number of colleges are providing professional development to faculty by meta-major

focused on enriching teaching and learning in foundational program courses in addition to strengthening instruction in mathematics and English composition.

Essential Practices for Colleges

- Replace discriminatory standardized placement testing with diagnostic testing and frequent feedback integrated into introductory coursework.
- Enrich teaching and academic support in college-level program foundation courses, not just math and English.

Ongoing Student Advising

What We Said Back Then

Redesigning observed that "the cafeteria college offers a fragmented array of self-service student supports, often scattered across a campus" (p. 71). Under this model, while academic and career advising and planning are available for students who seek them out, many students are not aware of what services are available, and those who use these services often receive conflicting advice. Lacking an educational plan and a dedicated advisor, students attempt to self-advise using the college's website, which may have poorly organized, incomplete, or out-of-date information.

Advising technologies offer a way for colleges to make some advising activities, such as student progress monitoring, more efficient. Still, Bailey et al. wrote, some students "felt that talking with a 'real person' was important regardless of the quality of online information" (p. 74). Given their high student-to-advisor ratios and limited funding to reduce these ratios, colleges have to find creative approaches to providing the personalized advising students need to succeed.

Our Current Thinking

Redesigning advising to allow case management by field is feasible.

Colleges implementing guided pathways have addressed the problem of limited resources for advising in a number of ways, including by expanding the concept of what a meta-major can do. *Redesigning* described meta-majors as a device for organizing information on programs to help students with program exploration and planning. Many colleges have not only done this but also redesigned the new student onboarding experience around meta-majors. As colleges have implemented guided pathways reforms, however, we have observed that meta-majors also provide a structure for creating academic and career communities that help students build networks offering peer support, mentoring, and program and job advice—supports that individual advisors cannot provide.

Advanced adopters of guided pathways have also been able to offer case-management advising by embedding advisors into meta-majors to advise students in a particular field. Embedding advisors in meta-majors has several advantages. First, it enables advisors to become specialists in the requirements for programs in their meta-major and for baccalaureate transfer programs, jobs, and careers that graduates from those programs are likely to pursue. Second, it positions advisors to work closely with faculty and academic administrators in their meta-major to recruit and retain students. Some colleges have assigned responsibility for recruiting and retaining students for particular meta-majors to completion teams made up of embedded advisors, lead faculty, career advisors, and others. Third, embedding advisors in meta-majors helps colleges cultivate meta-major-based academic and career communities.

Many colleges have not only reorganized existing advisors by field but also hired additional advisors (sometimes called student success coaches or program navigators) to allow for case-management advising by field. The hiring of new advisors is by far the largest cost involved in implementing guided pathways (Belfield, 2020). However, college leaders have indicated that the value it provides in terms of increased student engagement, reductions in excess credits, and higher completion rates makes it a worthwhile investment (Jenkins, Brown, et al., 2020).

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Funding Guided Pathways: A Guide for Community College Leaders

Davis Jenkins, Amy E. Brown, Maggie P. Fay, & Hana Lahr (2020)

This guide is intended to help community college leaders understand the costs involved in implementing guided pathways reforms and develop plans for funding and sustaining them. It is based on research at six institutions that have implemented large-scale changes based on the guided pathways model and explores the following questions:

- What are the up-front and recurring costs of guided pathways reforms?
- How are colleges funding these costs?
- How are colleges sustaining support for guided pathways practices?
- How can college leaders contemplating guided pathways reforms estimate the costs involved and develop a viable plan for funding and sustaining the reforms?

When all students have individualized educational plans, colleges can monitor their progress effectively and schedule classes based on those plans to facilitate program completion.

Community colleges have generally not systematically tracked students' progress toward program completion. Moreover, scheduling is typically done in an uncoordinated way across academic departments and divisions, which results in many students being unable to take the courses they need for completion and many course sections being canceled because of insufficient enrollments. Colleges have invested in scheduling software to help optimize class scheduling. However, unless students are on full-program plans, colleges do not have accurate information about what courses students need to take and when they need to take them.

Colleges that are further along in their guided pathways reforms have implemented systems to allow advisors and students to monitor their progress on their plans. Moreover, with all students on a plan, a growing number of guided pathways colleges are using student plans to make term-by-term registration easier for students and schedule the

classes they need to take to progress toward a credential. Once every student has a customized educational plan, colleges should create schedules a year or more in advance to make it easier for students to plan their lives.

Traditional academic calendars should be revised to help students balance school with competing responsibilities.

Community colleges are recognizing that conventional semester or quarter academic calendar systems, with classes in fall and spring and a summer break, do not fit the life schedules of their students, many of whom have competing work and family demands. Although efforts to rethink academic scheduling began independent of the pathways movement, they are consistent with the goal of redesigning programs and student supports to enable students to complete programs efficiently and affordably.

Many early-adopter guided pathways colleges are experimenting with innovations such as eight-week terms, rolling enrollments, and year-round schedules with program courses offered during the summer. While most of these approaches still need to be studied, some evidence suggests that providing incentives to take courses during the summer encourages summer enrollment and is cost-effective for colleges (Anzelone et al., 2020). Colleges should explore ways to enable and encourage students to take program courses during the summer and other strategies to help them complete their programs quickly.

Essential Practices for Colleges

- Use meta-majors to provide case-management advising by field and support students through an academic and career community.
- Create class schedules based on students' educational plans, and provide incentives for timely program completion.
- Consider ways to schedule classes so students can balance school, work, and family and still complete their programs in a reasonable timeframe.

Teaching and Learning

What We Said Back Then

Of all the chapters of *Redesigning*, the one that relied the least on research conducted by CCRC was the one on instruction. Bailey et al. mainly drew on the large body of research on teaching and learning in K-12 and the smaller body of literature on teaching and learning in postsecondary education to advocate for "a more coordinated, collaborative, and strategic approach to instruction" (p. 81). Specific recommendations included:

- aligning course learning outcomes to program learning outcomes to help students develop competencies in the "skills, concepts, and habits of mind" (p. 98) necessary in their field;

- moving from a knowledge-transmission model of instruction to a learning-facilitation model that "explicitly addresses conceptual understanding, metacognition, and student motivation" (p. 87), paring back course content if needed to accommodate this shift; and

- adopting a collaborative-inquiry approach to instructional improvement and faculty development, which Bailey et al. describe as "the most effective strategy for overcoming the challenges presented by a learning facilitation approach" (p. 117).

Our Current Thinking

Active learning is critical to student success.

While *Redesigning* highlighted the importance of supporting motivation and metacognition as explicit instructional goals, there was no discussion of the importance of active learning to student success in college and beyond.

Numerous studies have found that providing students with opportunities for active learning, in which they are engaged in critical thinking, problem-solving, questioning, or analysis, is positively associated with mastery of course content, along with problem-solving skill development, academic performance, college persistence, and undergraduate degree completion across fields (Theobald et al., 2020). Not only do students learn more from this type of engagement, but the experience also motivates students, particularly those from underrepresented groups, to persist in challenging programs (Wang, 2020; Wang et al., 2017).

Fortunately, there is a growing body of resources for college faculty based on research on principles and practices for effective teaching of undergraduates (see, e.g., American Psychological Association, 2020; Eberly Center, n.d.; National Research Council, 2015). The challenge is for college leaders to provide the resources and time for faculty to learn to apply these methods in their classrooms (Pallas et al., 2017).

Colleges should find ways to integrate experiential learning opportunities into all programs inside and outside the classroom.

Increasingly, to secure well-paying jobs with opportunities for advancement, job seekers need relevant experience in addition to degrees (Carnevale et al., 2020). Community colleges have long provided work-based learning opportunities to students in nursing, apprenticeship, and other career-technical programs, as well as service learning, study abroad, undergraduate research, and other co-curricular opportunities. However, relatively few students participate in these opportunities, leaving most community college students without such experiences. Community college students are often unable to participate because they need to work to support themselves and their families (Hora et al., 2017). Unless community colleges can expand both curricular and co-curricular opportunities for experiential learning, most community college students will continue to miss out on these valuable experiences.

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A small but growing number of guided pathways colleges are exploring ways to offer experiential learning across programs, including within the curriculum for career-technical and liberal arts and sciences coursework. These colleges recognize that not all students will be able to have clinical placements or other work-based learning experiences like those offered to nursing students—or even be able to participate in service learning. Therefore, experiential learning needs to be integrated into the curriculum through substantive projects and other means. But this is still very much a next frontier for the guided pathways movement.

Essential Practices for Colleges

- Integrate opportunities for active and experiential learning across programs (including liberal arts and sciences) both in and outside of coursework.
- Provide professional development and coaching to faculty on research-based principles and practices for effective college teaching.

Summary

Redesigning America's Community Colleges catalyzed a national community college reform movement and, in doing so, created a laboratory for CCRC and other researchers to study whole-college reforms at community colleges. Guided pathways colleges are rethinking their entire education model to meet the needs of today's students and labor markets, which are very different from those in the 1960s and 1970s, when the cafeteria college model emerged. Studying the experiences of scores of colleges implementing guided pathways reforms has helped us deepen and refine our understanding of the model we laid out in 2015.

Based on our research, we believe that colleges should focus on implementing the following reforms, which we think are essential to achieving more equitable student success:

- **Organize all programs by meta-major and backward-map them** to ensure they prepare students to secure a family-supporting job or transfer to a four-year college with no excess credits in their field of interest.

- **Redesign the onboarding experience** to help all students explore their interests and options, connect with an academic and career community, and develop an individualized educational plan aligned with their career and transfer goals.

- **Ensure that every student is able to take a well-taught course** on topics that interest them in their first term.

- **Reorganize advising to enable case management by field**, and monitor progress and schedule classes using students' individualized educational plans.

- **Integrate active and experiential learning** throughout programs, both inside and outside the classroom.

Colleges are seeing improved outcomes after implementing these practices. However, equity gaps remain by race/ethnicity, income, age, and other sociodemographic factors. Colleges must apply an equity lens to their practices to ensure that all students have equal access to—and support to complete—the high-opportunity program pathways they have created.

Next Frontiers for Guided Pathways Practice and Research

CCRC will continue to develop and study the five areas of guided pathways practice discussed in this report. We have also begun to examine how colleges that are more advanced in implementing guided pathways are building on their reforms to date to advance equity and opportunity for their students, particularly those from underserved groups, and meet the talent needs of local employers. These include:

- supporting faculty to integrate active teaching and learning in program foundation courses and throughout the curriculum;

- expanding opportunities for experiential learning to all students, not just those in career-technical programs; and

- extending guided pathways programs and practices into K-12 schools through dual enrollment to build on-ramps to high-opportunity college pathways, particularly for low-income students and students of color.

We hope to learn as much over the next six years as we have in the past six, studying the remarkable efforts of community colleges to redesign themselves to serve their students and communities in the 21st century.

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