

# Redesigning Community College Student Onboarding Through Guided Pathways

## Part 1: Rethinking New Student Onboarding

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***Apply to college. Take a placement test. See an advisor (maybe). Register for first-term courses. Attend a college orientation (maybe). Start attending classes.***

This is the typical experience for the nearly two million first-time students who begin community college every year. The process is designed to enable large numbers of students to start taking college courses right away. But the institutions have limited staff to shepherd new students, and the process is not well designed to help students explore career and academic interests, find a program of study that is a good fit, and develop a plan for completing such a program.

Research generally finds that college students are more likely to complete a program of study if they choose a major that aligns with their interests and goals (Allen & Robbins, 2010; Tracey & Robbins, 2006). Yet many new community college students do not have clear goals. Nearly 40% of community college students report being undecided about their major at the end of their first year (authors' calculations from the 2004/09 Beginning Postsecondary Students Longitudinal Study), and the actual proportion who are truly undecided may be much higher, as students must declare a program of study to qualify for financial aid.

Community colleges, of course, want to help students develop their goals and find their way. All community colleges have academic advisors, and most provide career services. Yet it is often left to students to seek out these supports. As a result, community college students—and particularly those most in need of assistance—tend to self-advise, relying on the course catalog, the college website, and friends and family members (who may have no higher education experience themselves) to help them navigate a myriad of college choices (Center for Community College Student Engagement [CCCSE], 2018; Deil-Amen & Rosenbaum, 2003). It is perhaps not surprising, then, that community college students often express confusion and frustration with advising and registration, with many indicating later that they took courses they did not need or that would not transfer to their chosen major at a four-year destination college (Kadlec & Gupta, 2014; Schudde, Bradley, & Absher, 2020).



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In response to these concerns, community colleges across the country are rethinking their new student onboarding process with the aim of helping students choose and plan a program of study best suited to their interests and aspirations. They are replacing what is typically a set of disconnected and optional activities such as new student orientation and meeting with an advisor with a coherent series of curricular and co-curricular experiences that enable students to explore program options; network with faculty, students, and industry professionals in fields of interest; take program-specific courses; and create an educational plan that they and their advisors can use to monitor their progress toward completion.

Colleges are making these changes as part of broader, whole-college, “guided pathways” reforms intended to increase the rate—and reduce the time and cost—at which students, particularly those from underrepresented groups, complete programs of study that prepare them for further education and career-path employment. (For more on guided pathways, see Jenkins, Lahr, Fink, & Ganga, 2018.)

This three-part packet is designed to provide guidance to colleges seeking to redesign their new student onboarding practices to better help students choose and enter a program of study. This first part reviews research on why the conventional community college approach to new student onboarding is often unsuccessful in helping students choose and plan a program, and it describes how colleges are rethinking the process as part of larger 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 new student onboarding practices at their campuses. **Part 3** presents a series of discussion and planning activities for colleges seeking to redesign new student onboarding to increase the chances that new students will choose a program that suits them well and develop and begin to follow a well-conceived program completion plan.

### **More on How Guided Pathways Colleges are Redesigning Onboarding**

Read one-page profiles on how a sample of colleges of different sizes and locales are taking a holistic approach to redesigning the new student experience as part of guided pathways reforms, using design features discussed here, at <https://ccrc.tc.columbia.edu/publications/redesigning-community-college-onboarding-guided-pathways.html>

## **Problems With the Conventional Approach**

To orient new students and help them better understand campus resources, community colleges provide websites with information about programs of study, new student orientations and advising, college success courses, career and transfer centers, and other services and supports. However, evidence strongly indicates that this information and these onboarding practices themselves fall short of helping most students explore options and interests, choose a program direction, and develop a plan for completing a program.

### **Web-based program information is inadequate on its own to help students.**

Community colleges generally post information on program and course offerings on their websites. However, analyses of college websites find large variation in the accuracy and usability of the information provided (Government Accountability Office, 2017; Schudde et al., 2020). Programs of study are typically listed in alphabetical order, often with limited information about both program requirements and the further education and employment opportunities that completing a program might lead to. A CCRC study at a Michigan

community college, for example, found that students were unable to answer basic questions about program and transfer requirements using information on their college's website (Jaggars & Fletcher, 2014).

**New student orientations and advising are focused too narrowly on helping new students orient to campus and register for first-term courses.**

New student orientation sessions at community colleges are often brief and often take place before the beginning of the term, when some students may find it difficult to participate (Karp, 2013; Sandoval-Lucero, Antony, & Hepworth, 2017). Moreover, orientations are usually not designed to introduce students to the college's programs of study and career and transfer options. Instead, they typically include information on topics such as using college websites, student portals, and other campus resources. Students might also take a campus tour, get a student identification card, and meet with officials from admissions and financial aid offices. At many community colleges, orientation is optional or offered in a condensed, online format to students to avoid creating an enrollment barrier for students (Sandoval-Lucero et al., 2017).

First-term advising is also often narrowly conceived. Community college advisors typically have very high caseloads, and new students at community colleges tend to try to register at the last minute before the term begins. In these circumstances, advisors are often able to focus on only transactional activities centered on course scheduling and not on career and academic counseling and planning (Grubb, 2006; Kalamkarian, Boynton, & Lopez, 2018; Karp, 2013). A national survey of entering community college students found that fewer than half met with an advisor at all and that a third of those who did meet with an advisor did not receive help in creating an academic plan (CCCSE, 2018).

**Colleges assume incorrectly that students will seek out assistance with career and transfer exploration and planning.**

Many campuses have career centers to help students with career assessment, planning, and job searches. Some also have transfer advisors trained to counsel students seeking to transfer to a baccalaureate program. However, career counseling, transfer advising, and academic advising are often separate from one another, with different staff and limited coordination (Ledwith, 2014). The result is that students are not accessing the supports they need to achieve their goals. For example, recent surveys of community college students found that half of students who said they wanted to transfer reported never using transfer advising or planning services, and more than a quarter of entering students indicated that they did not discuss career plans with an advisor (CCCSE, 2018).

Some colleges do provide support for career and academic exploration and planning as part of student success (or what are also sometimes called "College 101" or "first-year experience") courses. These courses are associated with improved short-term outcomes, although their effects diminish over time (Cho & Karp, 2013; Rutschow, Cullinan, & Welbeck, 2012; Scrivener, Sommo, & Collado, 2009; Weiss, Brock, Sommo, Rudd, & Turner, 2011). Still, such courses are often optional, and their content varies greatly.

While some students receive more intensive counseling and supports through federal TRIO programs or other programs for veterans, athletes, and other special populations, the number of students served through such programs tends to be a fraction of overall college

enrollments. In general, most students must seek out career or transfer advising on their own. Research indicates, not surprisingly, that the students who most need such services are the least likely to use them (Karp, O’Gara, & Hughes, 2008).

**Many new students do not take courses in their field of interest in their first or even second term.**

Seminal research on college student persistence has emphasized the importance of campus engagement for student success (Tinto, 1993). A key component of engagement is involvement in college activities (Tinto, 2012). However, increasing involvement beyond the classroom is challenging for community college students, who often have work and family obligations that prevent them from spending much time on campus.

The primary way that community colleges can engage all of their students is in connection with their courses and programs. Yet the typical course-taking patterns of entering community college students do not afford much opportunity for involvement with either program faculty or student peers with like interests. Why is this so? First, more than two thirds of first-time community college students take one or more developmental courses in math and/or English (Chen, 2016). These courses often serve as prerequisites for college-level coursework and may, therefore, restrict students’ access to courses in a student’s field of interest. Second, students seeking to transfer to a four-year institution who are not sure of what to major in are often advised to take general education courses to keep their options open rather than to take more specialized courses that might help them confirm or question their interest in a particular field (Bailey, Jenkins, Fink, Cullinane, & Schudde, 2017).

**Dual enrollment courses for high school students rarely offer supports to help students explore interests and develop college plans.**

The number of high school students taking college credits through dual enrollment courses has grown substantially in recent years, with most of the growth happening in courses taken through community colleges (Fink, Jenkins, & Yanagiura, 2017). It can be difficult for colleges to provide adequate information, despite partnerships with high school instructors and guidance counselors, on how such courses will apply to a college-level program that a student may want to pursue. Indeed, advising for dual enrollment students likely varies greatly, and many students may not get any advising about what courses to take and how they might relate to academic and career plans (Kanny, 2015).

**Conventional onboarding practices do not take into account the intricate learning process involved in choosing a major.**

Research strongly indicates that choosing a college major that is a good fit for a student results from an active learning process that takes time. It is shaped not only by information students initially receive about a particular field but by their experiences with particular courses and subjects and through engagement with faculty and others in a field (Stinebrickner & Stinebrickner, 2011; Bailey, Jenkins, Belfield, & Kopko, 2016). The process plays out over time and is not necessarily linear. Students can and do change their minds (National Center for Education Statistics, 2017; Pozzebon, Ashton, & Visser, 2014).

The typical community college onboarding process is not well designed to guide and support students through such a developmental process of engagement, discovery, and planning. Instead, most students are left to figure out a direction and develop a plan mostly on their own.

## Rethinking Onboarding From a Guided Pathways Perspective

Under the guided pathways approach, colleges are redesigning onboarding practices to help students explore career and program options, choose a program direction, and develop a full-program plan. As discussed below, this requires thinking about onboarding practices in new and more holistic ways.

### Organizing and Introducing Programs by Field of Interest

**FROM** *Programs organized by type of credential: academic/transfer-oriented versus career-technical (and by credit vs. noncredit)*      **TO** *Programs organized into broad topical career/academic areas, or “meta-majors,” regardless of credential type*

Community colleges implementing guided pathways are organizing programs into career- and academic-field focused “meta-majors,” developing maps listing required courses and recommended course sequencing, and connecting programs with specific jobs and with specific majors at four-year institutions (which are also shown on the maps). Grouping programs by meta-major is intended to help students make thematic sense of a college’s many programs, while the maps provide a clearer idea of what students will need to take to complete a program and what job and transfer opportunities will be open to them when they do so. In addition to using meta-majors to organize program information on their websites, colleges are using them as the framework for redesigned new student onboarding. In colleges that are further along with their guided pathways reforms, these meta-majors are evolving into “career and academic communities,” which should help facilitate engagement and involvement in a field of study and thus increase the chances students will persist.

#### Example | Alamo Colleges

In the past, all five colleges in the Alamo Colleges District in San Antonio, Texas, offered their own programs with limited coordination among the campuses. Since 2014, the Alamo Colleges have organized all programs district-wide into six meta-majors, or “Alamo Institutes” (see box). The college’s website shows all programs under each institute and indicates which Alamo colleges offers which programs.

All students are required to choose an institute when they apply and are helped to explore and choose a program within that institute or switch to another. To support this, advising district-wide has been redesigned around the institutes. The college has hired new advisors to reduce the advisor-to-student ratio to 1:350 (down from 1:900 several years ago). All advisors have been trained as career coaches.

The Alamo Colleges have also created multi-tiered advisory committees at the district, college, meta-major, and program levels that provide forums for employers and others to regularly review programs. This helps ensure that programs of study are up-to-date and responsive to employer needs so that students are well prepared to secure good jobs when

#### Meta-Majors at Alamo Colleges called Alamo Institutes

- creative and communications arts
- science and technology
- health and biosciences
- business and entrepreneurship
- public service
- advanced manufacturing and logistics

they graduate. The Alamo Colleges have also worked with university partners to develop transfer advising guides for each program that show what credits apply toward particular majors at specific universities. And they have strengthened connections with the K-12 system by aligning the six meta-majors with the state’s five high school “endorsement areas,” which are career field categories every Texas high school student is required to choose from. The aim is to help high school students, parents, and counselors see postsecondary paths related to each student’s field of interest. High school dual enrollment students are advised based on the institute (meta-major) program maps for their field of interest so they can hit the ground running when they enroll in college.

### Example | Prince George's Community College

Prince George's Community College (PGCC) in Maryland used cross-functional teams of faculty and staff to develop and organize programs into nine meta-majors, called “academic and career pathways” (see box). Information on these pathways is easy to find on the college’s website, in the course catalog, and posted around the campus. At PGCC, credit and noncredit programs are included in each pathway in order to keep the focus on students’ goals rather than the credit status of programs. The college cross-lists courses in credit and noncredit programs and has created “bridges” between noncredit occupational certificate, credit certificate, and associate degree programs. Within each meta-major on the college website, PGCC lists all of the types of credentials available and the length of time it will take students attending full-time to complete the programs. For students interested in transferring, the college also lists career options that students could pursue with a bachelor’s degree in the given field.

#### Meta-Majors at PGCC called *Academic and Career Pathways*

- allied health and nursing
- behavioral and social sciences
- business, industry, and entrepreneurship
- education
- liberal and creative arts
- professional and personal development
- public safety and law
- science, engineering, and math
- technology
- wellness, culinary arts, and hospitality

## Improving Orientation and New Student Advising

**FROM** *Optional new student orientation and advising focused on first-term registration*

**TO** *Mandatory new student orientation and advising focused on helping students explore career and academic options*

Colleges are redesigning new student orientation and advising so that all students (not just those who seek out advising) begin exploring career and academic program options from the start. This also helps students to more easily meet and network with faculty, students, and others who share the same field of interest. Likewise, many colleges are organizing orientations and advising by meta-major to introduce students to the most relevant available programs in a focused, more thematic way. Although students are not locked into a particular field or program, this communicates to students that they need to start thinking about careers and a major.

**Example | Pierce College District**

To connect students to advisors as early as possible, Pierce College District in Washington State hired admissions coaches who call students upon receipt of their application to welcome them to the college and provide them with their advisor's contact information. The college also implemented a policy requiring all students to be in a program of study by the second quarter. To facilitate this process, the college eliminated an optional 90-minute pre-semester orientation, which typically only about a third of students attended. In its place, Pierce developed online modules to help students learn about campus basics and then required students to meet with an advisor to review the online modules, select a program of study, and develop a full program plan. If students need more guidance in exploration of career and program options, they can receive direct assistance from an instructor in a required, three-credit course called "College 110" that is taken in the first quarter. All students must select a program of study and have a full educational plan upon completing College 110. According to Pierce, 78% of students reported feeling more confident in their choice of major after taking College 110.

**Example | Chattanooga State Community College**

Incoming students at Chattanooga State Community College in Tennessee are required to attend an orientation that is specific to one of the college's meta-majors, called "divisions." Deans and faculty members in each division participate in orientation and meet with new students, which allows students to make early contact with people in their field of interest. Students are also required to meet with a "success coach" for their division who helps them develop a first semester schedule that includes the appropriate math course for their likely program and a college success course that is contextualized to each division. During the success course, all students, regardless of their division, take a career assessment, participate in full educational plan development with a faculty advisor in their division, and receive information about career and academic advising. The remainder of the course varies by division. The college success course in engineering, for instance, covers topics such as engineering ethics and software used in engineering-related courses. The course includes visits from industry experts and tours of local employers' facilities. All of the college success courses at Chattanooga State include a service learning and community involvement project.

**Expanding Career and Transfer Advising to All Students**

**FROM** *Career and transfer advising and planning provided to students who seek it out*

**TO** *Career and transfer exploration and planning support provided to all students from the start*

Colleges implementing guided pathways are extending career and program exploration beyond orientation by helping all students explore career and academic options and move toward developing a full-program plan by the end of the first term. This is important because it gives students a complete picture of their academic journey from the beginning through to completion. The exploration process starts with new student orientation and advising but continues through the first term and beyond. Many colleges are using required first-year experience courses, program or meta-major-specific events, and program and career assessments to engage students in more in-depth career and academic exploration and planning.

### Example | Central Carolina Community College

Faculty and staff at Central Carolina Community College in North Carolina developed a career inventory that asks students about their interests and suggests programs offered by the college that might be a good fit. The inventory, which all entering students must take either upon application or with their advisor before they register for their first term, also asks students to rate how confident they are about their current tentative choice of career. Advisors use the inventory to discuss what programs are suited to each student's goals and strengths. First-year experience course instructors administer a different career assessment and discuss the results of both with students.

Central Carolina has also developed simplified program sheets that highlight the career and transfer opportunities associated with particular programs. Advisors use these sheets to help students connect their career interests with programs offered by the college. Central Carolina has found that about a quarter of students need additional assistance thinking about career goals, and helping them do so is especially important considering that students who rate themselves as having low confidence in their career choice are more likely to do worse academically. The college provides extra supports with specially trained advisors to ensure that these students are given extra assistance throughout the onboarding process.

### Example | Sinclair Community College

Every semester, faculty, administrators, and staff from all six of Sinclair Community College's meta-majors (called "career communities") participate in Deciding Day. Throughout the day, new students from the Ohio college meet with and talk to faculty, advisors, and staff to discover more about careers and programs in each meta-major and to pick a meta-major that best aligns with their interests. Students also gather information about transfer opportunities, graduate degrees, and the mean salaries for jobs in Ohio.

Students can also learn about careers and academic programs through a Conversations with Experts event, which is held two or three times a year by different career communities. During the event, students visit stations and speak with faculty, employers, and others who are knowledgeable about academic requirements and career paths for particular kinds of jobs. The college extends invitations for both Deciding Day and the Conversations with Experts event to local high school students and students who will begin college over the summer. Sinclair encourages new students who are still undecided after engaging in career exploration events such as these to make an appointment with a career advisor to take some career assessments and discuss results.

### Sample Questions From Central Carolina's Career Inventory

- List all occupations you are considering right now.
- Which occupation is your first choice?
- How satisfied are you with your responses to the questions above?
- If I had to make an occupational choice right now, I'm afraid I would make a bad choice. (true/false)
- Making up my mind about a career has been a long and difficult problem for me. (true/false)
- I am confused about the whole problem of deciding on a career. (true/false)

## Increasing Engagement With Programs From the Start

- FROM** *Students engage with programs only after completing developmental and general education prerequisites*
- TO** *Students engage with programs (through coursework, faculty, advisors, peers) from the start*

Typically, community college students must take developmental education and other prerequisite courses before they can take a program-specific course. Thus, it may take a term or more before they can take a course in their chosen field of interest and engage with faculty and students who are also associated with that field. Colleges implementing guided pathways reforms are building opportunities for students to engage in a field of interest in the first term. As part of the program mapping work, faculty at some colleges are creating first-term curricula for each meta-major that give students a taste of college-level study in their chosen field. This practice also ensures that new students who share similar interests are taking courses together, which has the potential to create cohort effects. Early program engagement also enables students to see if their program/meta-major choice feels right to them.

### Example | Norco College

As part of their program maps, faculty and staff Norco College in Riverside County, California, created “trailhead” curricula, or suggested initial courses to take, for each of its eight meta-majors, or “schools.” The trailhead model is designed to ensure that students take a program-specific course in their chosen school early on and that students can move easily between related programs within the same school without losing credits. Each trailhead includes a program-specific course within the first 15 units (see box). All program maps are reviewed annually.

#### **Norco College Trailhead for School of STEM Science and Health** *suggested first semester courses*

- English Composition
- Statistics or Trigonometry
- General Biology, Human Biology, or Introductory Chemistry I
- History elective
- Career Exploration and Life Planning

### Example | Laramie County Community College

Each of the seven meta-majors, or “pathways,” created by Laramie County Community College (LCCC) in Wyoming includes a “general program,” or a set of three courses (nine credits), that apply to any program in that pathway. The general program contains “choice points” to make sure that students are picking a major by end of term one or year one, depending on the program. Every student at LCCC is assigned an advisor in their pathway who helps them make the decision. A required, career-focused college success course is also included in every general program. The student success courses are contextualized to particular pathways and (ideally) taught by a faculty member in the pathway who has received extra professional development to teach the course.

## Designing Dual Enrollment as an On-ramp to College

**FROM** *Unsystematic dual enrollment course-taking among high school students*      **TO** *Dual enrollment course-taking designed as an on-ramp to college and career pathways*

Colleges implementing guided pathways are starting to extend the guided pathways approach into their feeder high schools by using dual enrollment course-taking and advising to help high school students explore academic and career interests and think about what they might want to study in college. This has a number of potential benefits. First, it could help motivate students to attend college; second, it could increase the chances that courses they take in high school will align with their college program coursework after high school.

### Example | Lorain County Community College

Lorain County Community College works with more than 50 area high schools to offer dual enrollment courses at no cost to students and families through Ohio's College Credit Plus (CCP) program. Each high school student taking college coursework is supported by a three-person team of advisors: the student's high school guidance counselor (who handles the most common types of CCP course-taking), a generalist advisor in Lorain's School and Community Partnerships office who is responsible for managing the partnership with the high school, and a meta-major specific advisor at Lorain who handles students who have earned a substantial number of credits and have begun to focus in on a particular area of study. As these students accumulate more credits or indicate an interest in exploring a program of study, they are connected to the Lorain meta-major specific advisor to build a specific educational plan. These plans take into account high school graduation requirements, Lorain degree program requirements, and bachelor's degree requirements in relevant majors offered by partner universities.

## Conclusion

The conventional approach to onboarding new students at community colleges is not well designed to help students choose and plan a program in a field of interest to them. Colleges implementing guided pathways reforms are redesigning the onboarding process to create a coherent set of experiences to help students explore career and college options and interests; engage with faculty, students, and others in relevant fields; choose an academic and career direction through meta-majors; select a program of study; and develop a full-program plan to guide their progress.

In **Part 2** of this packet, we present findings from research on students' perceptions of the changed practices their colleges are using for new student onboarding. In **Part 3**, we present a series of activities to help colleges that are planning to redesign their new student onboarding process as part of larger guided pathways reforms.

## References

- Allen, J., & Robbins, S. (2010). Effects of interest-major congruence, motivation, and academic performance on timely degree attainment. *Journal of Counseling Psychology, 57*(1), 23–35. doi:10.1037/a0017267
- Bailey, T. R., Jenkins, D., Belfield, C., & Kopko, E. (2016). Matching talents to careers: From self-directed to guided pathways. In A. P. Kelly, J. S. Howell, & C. Sattin-Bajaj (Eds.), *Matching students to opportunity: Expanding college choice, access, and quality* (pp. 79–98). Cambridge, MA: Harvard Education Press.
- Bailey, T. R., Jenkins, D., Fink, J., Cullinane, J., & Schudde, L. (2017). *Policy levers to strengthen community college transfer student success in Texas: Report to the Greater Texas Foundation*. New York, NY: Columbia University, Teachers College, Community College Research Center.
- Center for Community College Student Engagement [CCCSE]. (2018). *Show me the way: The power of advising in community colleges*. Austin, TX: The University of Texas at Austin, College of Education, Department of Educational Leadership and Policy, Program in Higher Education Leadership.
- Chen, X. (2016). *Remedial coursetaking at U.S. public 2- and 4-year institutions: Scope, experiences, and outcomes* (NCES 2016-405). Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Cho, S. W., & Karp, M. M. (2013). Student success courses in the community college: Early enrollment and educational outcomes. *Community College Review, 41*(1), 86–103. doi: 10.1177/0091552112472227
- Deil-Amen, R., & Rosenbaum, J. E. (2003). The social prerequisites of success: Can college structure reduce the need for social know-how? *The Annals of the American Academy of Political and Social Science, 586*(1), 120–143. doi: 10.1177/0002716202250216
- Fink, J., Jenkins, D., & Yanagiura, T. (2017). *What happens to students who take community college dual enrollment courses in high school?* New York, NY: Columbia University, Teachers College, Community College Research Center.
- Government Accountability Office. (2017). *Students need more information to help reduce challenges in transferring college credits*. Washington, DC: Author.
- Grubb, W. N. (2006). “Like, what do I do now?”: The dilemmas of guidance counseling. In T. R. Bailey & V. S. Morest (Eds.), *Defending the community college equity agenda* (pp. 195–222). Baltimore, MD: Johns Hopkins University Press.
- Jaggars, S. S., & Fletcher, J. (2014). *Redesigning the student intake and information provision processes at a large comprehensive community college* (CCRC Working Paper No. 72). New York, NY: Columbia University, Teachers College, Community College Research Center.
- Jenkins, D., Lahr, H., Fink, J., & Ganga, E. (2018). *What we are learning about guided pathways. Part 1: A reform moves from theory to practice*. New York, NY: Columbia University, Teachers College, Community College Research Center.
- Kadlec, A., & Gupta, J. (2014). *Indiana regional transfer study: The student experience of transfer pathways between Ivy Tech Community College and Indiana University*. Brooklyn, NY: Public Agenda.
- Kalamkarian, H. S., Boynton, M., & Lopez, A. (2018). *Redesigning advising with the help of technology: Early experiences of three institutions*. New York, NY: Columbia University, Teachers College, Community College Research Center.
- Kanny, M. A. (2015). Dual enrollment participation from the student perspective. *New Directions for Community Colleges, 2015*(169), 59–70.
- Karp, M. M. (2013). *Entering a program: Helping students make academic and career decisions* (CCRC Working Paper No. 59). New York, NY: Columbia University, Teachers College, Community College Research Center.

- Karp, M. M., O’Gara, L., & Hughes, K. L. (2008). *Do support services at community colleges encourage success or reproduce disadvantage? An exploratory study of students in two community colleges* (CCRC Working Paper No. 10). NY: Columbia University, Teachers College, Community College Research Center.
- Ledwith, K. E. (2014). Academic advising and career services: A collaborative approach. *New directions for student services*, 2014(148), 49–63.
- National Center for Education Statistics. (2017). *Beginning college students who change their majors within 3 years of enrollment* (NCES Data Point brief). Washington, DC: Author.
- Pozzebon, J. A., Ashton, M. C., & Visser, B. A. (2014). Major changes: Personality, ability, and congruence in the prediction of academic outcomes. *Journal of Career Assessment*, 22(1), 75–88.
- Rutschow, E. Z., Cullinan, D., & Welbeck, R. (2012). *Keeping students on course: An impact study of a student success course at Guilford Technical Community College*. New York, NY: MDRC.
- Sandoval-Lucero, E., Antony, K., & Hepworth, W. (2017). Co-curricular learning and assessment in new student orientation at a community college. *Creative Education*, 8(10), 1638–1655. doi: 10.4236/ce.2017.810111
- Schudde, L., Bradley, D., & Absher, C. (2020). Navigating vertical transfer online: Access to and usefulness of transfer information on community college websites. *Community College Review*, 48(1), 3–30. doi: 10.1177/0091552119874500
- Scrivener, S., Sommo, C., & Collado, H. (2009). *Getting back on track: Effects of a community college program for probationary students*. New York, NY: MDRC.
- Stinebrickner, T. R., & Stinebrickner, R. (2011). *Math or science? Using longitudinal expectations data to examine the process of choosing a college major* (NBER Working Paper No. 16869). Cambridge, MA: National Bureau of Economic Research.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago, IL: University of Chicago Press.
- Tinto, V. (2012). *Completing college: Rethinking institutional action* (1st ed.). Chicago, IL: University of Chicago Press.
- Tracey, T. J. G., & Robbins, S. B. (2006). The interest-major congruence and college success relation: A longitudinal study. *Journal of Vocational Behavior*, 69(1), 64–89. doi:10.1016/j.jvb.2005.11.003
- Weiss, M., Brock, T., Sommo, C., Rudd, T., & Turner, M. C. (2011). *Serving community college students on probation: Four-year findings from Chaffey College’s Opening Doors Program*. New York, NY: MDRC.

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