



Advising for College Success: A Systematic Review of the Evidence

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The College Completion Network conducted a systematic review of the research on advising strategies that support college completion. Several key findings can inform policy and practice:

- **Holistic and comprehensive interventions that combine multiple components to meet student needs improve student outcomes.** These types of interventions provide students with a comprehensive suite of advising, student services, academic support, and financial aid. Rigorous studies have consistently found long-term, positive effects on student outcomes.
- **Proactive communication with sustained follow-up that spans a student's trajectory through college improves student outcomes.** The review found that students benefit when colleges communicate proactively, pair outreach with consistent follow-up, and provide incentives for students to respond. Informational interventions, such as those delivered via text messaging or email campaigns, should provide targeted and actionable information with clear next steps.
- **Student success can be bolstered when colleges provide a robust set of nonacademic supports through comprehensive case management.** Now more than ever, college students require a range of nonacademic supports to ensure their success in college. Colleges can partner with case management organizations to connect students with mental health supports, childcare, transportation assistance, and access to food and other basic needs. As new evidence merges, practitioners can learn about the most effective approaches to providing nonacademic supports.

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Why This Study?

During the past two decades, research on the effect of interventions aimed at improving college student success through advising has grown rapidly. However, how useful this research has been to policymakers and practitioners is unclear. Often, researchers develop studies without directly consulting practitioners; as a result, these studies may not respond to their needs. In addition, it can take several years from the time a researcher conceptualizes a study to the time that the researcher can report findings to the public. During this time, policies and practices constantly evolve as colleges respond to new legislation, administrative turnover, shifting priorities, and emerging evidence of best practices. Often, newly released findings reflect programs that no longer exist or have evolved enough that the new findings are outdated.

Compounding this problem, the research on college advising is substantial, but findings are often conflicting, and practitioners may not have the technical skills or time to evaluate the quality of research evidence in developing and refining their approach. As a result, practitioners may draw on studies that lack compelling evidence and overlook other studies that have opposing and higher quality evidence.¹

To address these challenges, the College Completion Network conducted a systematic review of the research literature on advising policies, practices, and programs (hereafter referred to as “strategies”). The systematic review provides policymakers and practitioners with a summary of evidence for a wide range of advising strategies that have been the focus of research conducted during the past two decades. It also highlights high-quality evidence based on What Works Clearinghouse (WWC) evidence reviews. This systematic review complements a recent WWC practice guide, *Effective Advising for Postsecondary Students: A Practice Guide for Educators* (Karp et al., 2021), which draws on reviews of research, the experiences of practitioners, and the expert opinions of a panel of nationally recognized experts to provide evidence-based recommendations to college practitioners.

For more information, read the other articles in this series:

[Advising for College Success: Policies, Practices, and Program that Support Students on the Path to College Completion](#)

[Advising for College Success: Next Steps for Policymakers, Practitioners, and Researchers](#)



About the College Completion Network

The College Completion Network is a research network funded by the Institute of Education Sciences. Network members include five research teams studying promising interventions for improving college completion. The network lead team, which includes researchers at the American Institutes for Research and Stanford University, supports collaboration among network teams through convenings, work groups, and outreach.

Policymakers and practitioners can use the findings from this study to identify advising strategies that have strong evidence of effectiveness. They may want to consider implementing or expanding these evidence-based strategies on their campuses. Conversely, they can use the findings from this study to identify advising strategies that do not have strong evidence. They may want to consider adjusting or discontinuing these strategies on their campuses after sharing this information with stakeholders and eliciting their feedback.

¹ A reliable source of information about promising interventions is the What Works Clearinghouse (WWC; <https://ies.ed.gov/ncee/wwc>). The WWC website includes reviews of individual studies, practice guides that describe evidence-based recommendations for educators to improve student outcomes, and intervention reports that summarize findings from high-quality research on interventions or practices.

KEY FINDINGS

- **Holistic and comprehensive interventions that combine multiple components to meet student needs improve student outcomes.** These types of interventions provide students with a comprehensive suite of advising, student services, academic support, and financial aid. Rigorous studies have consistently found long-term, positive effects on student outcomes.
- **Proactive communication with sustained follow-up that spans a student’s trajectory through college improves student outcomes.** The review found that students benefit when colleges communicate proactively, pair outreach with consistent follow-up, and provide incentives for students to respond. Informational interventions, such as those delivered via text messaging or email campaigns, should provide targeted and actionable information with clear next steps.
- **Student success can be bolstered when colleges provide a robust set of nonacademic supports through comprehensive case management.** Now more than ever, college students require a range of nonacademic supports to ensure their success in college. Colleges can partner with case management organizations to connect students with mental health supports, childcare, transportation assistance, and access to food and other basic needs. As new evidence merges, practitioners can learn about the most effective approaches to providing nonacademic supports.

Characterizing Advising Interventions

For the purposes of this study, we define college advising interventions broadly to include any policy, practice, or program that aims to improve student success through relationships between college personnel and college students. Our definition is intentionally broad. Historically, college advising occurred between a faculty member and a student, and focused on choosing a major and selecting courses. On many campuses, this approach to advising persists. Increasingly, however, college advising has become the responsibility of many on campus (including professional advisors, tutors, mentors, and peers), and the focus has expanded to include a range of services. For example, advising might include efforts to support the transition to college, connect students with resources on campus, build time management and study skills, and troubleshoot barriers to attendance and achievement (Abelman & Molina, 2001; Johnson et al., 2016; Jones, 2013; Rios, 2019). Recognizing that stressful experiences, such as food and housing insecurity, impede student success by diverting students’ attention from their coursework (Goldrick-Rab et al., 2010; Maroto et al., 2015), advising also increasingly connects students to resources that help them meet basic needs. The extent to which this expanded set of advising services are in place on campus—and the extent to which they are fully integrated—depends on contextual factors like staffing and other resources.

On the other end of the spectrum, some colleges have taken advantage of new technology platforms and the widespread use of mobile devices to provide information to students through text messages and emails (Ideas42, 2016). These low-touch, low-cost strategies allow colleges to convey important information to students, such as deadlines for applying for financial aid, choosing courses, signing up for orientation, making tuition payments, and more. Some informational interventions include an interactive component by allowing students to respond to the messages and communicate directly with an advisor (for example, see Oreopoulos & Petronijevic, 2019). Although the findings from research on the effectiveness of informational interventions to date is mixed, this study considers them to be advising strategies because they play an increasing role in communicating and engaging with students. Indeed, for many students—particularly those considered self-sufficient—information may be the only form of advising they receive.

Given the broadness of advising interventions, the research team sought to organize the study by characterizing these strategies based on the goals they intend to achieve. The study describes seven goals, including four that we consider the core—or traditional—goals of advising, and three that expand on these core goals. Advising interventions are holistic when they address multiple goals, and they are comprehensive when they address these multiple goals across students' trajectories through college rather than solely in the first year. The goals include the following:

Goals of advising:



Goal 1: Helping students enroll in appropriate courses



Goal 2: Establishing meaningful relationships with students



Goal 3: Connecting students to relevant academic supports



Goal 4: Connecting students to relevant nonacademic supports



Goal 5: Helping students navigate the complexities of college



Goal 6: Helping students navigate life challenges



Goal 7: Helping students plan for and transition to next steps

Methodological Approach

To determine which advising strategies have evidence of improving college outcomes, the study team conducted a systematic review of the literature on advising strategies offered to current college students. Traditional narrative reviews tend to collect convenience samples of published studies, making them vulnerable to publication bias. To minimize bias in the review process, the team's approach included (a) developing and implementing a fully transparent, multipronged strategy for identifying and obtaining relevant published and unpublished studies by searching education databases and unpublished literature; (b) creating a database that contained study abstracts, links to research documents, and forms that allowed screeners to input judgments; and (c) applying clearly articulated and documented inclusion and exclusion criteria.

The study team performed the literature search in May 2020 and included studies released in the year 2000 or later. The team reviewed studies that met the criteria for inclusion in the review against the WWC Group Design Standards or Regression Discontinuity Design Standards (hereafter referred to as "WWC standards"; WWC, 2020). The study team then applied Every Student Succeeds Act (ESSA) Tiers of Evidence criteria to studies that

did not meet WWC standards (hereafter referred to as “evidence criteria”). Box 1 lists the criteria for inclusion in the review. Appendix A provides the methods used to conduct the review.

BOX 1. CRITERIA FOR INCLUSION IN THE REVIEW

With input from College Completion Network members, the study team developed a set of criteria for inclusion in the review and used these criteria to screen study abstracts and full-text articles. The criteria included the following:

Population: The review included studies of students currently enrolled at a not-for-profit 2-year or 4-year college in the United States or Canada at baseline or at the beginning of the intervention, and it did not include studies of high school students transitioning to postsecondary education.

Intervention: The review included studies focused on advising strategies.

Outcome measures: The review included studies that examined the effect of an intervention on college credit accumulation and persistence, academic achievement, degree completion, and labor market outcomes following degree completion, such as employment and earnings.

Research design: The review included studies that randomly assigned participants to a condition (randomized controlled trials), studies that nonrandomly assigned participants to a condition (quasi-experimental designs), regression discontinuity design studies with an eligible comparison group, and single-case design studies.

Type of study: The review included studies that conducted a primary analysis of an intervention and did not include meta-analyses or literature reviews.

Timing: The review included studies released between 2000 and May 2020 when the literature search was conducted.

Findings

The study team identified 154 studies for potential inclusion in the systematic review and determined that 92 met eligibility criteria for review. Among these 92 studies, 22 studies had at least one finding that met WWC standards.² Among the 70 studies that did not have findings that met WWC standards, 16 studies had at least one finding that met criteria for promising evidence. Summaries of evidence for these studies are in Appendix B, and the full list of studies—including their citation, eligibility for review, WWC disposition, and evidence rating—is in [Appendix C](#).³

The following sections describe the findings from the 38 studies that either met WWC standards or did not meet standards but met criteria for promising evidence for at least one finding. The studies are grouped into four categories: academic information and advising interventions; academic and nonacademic skill-building interventions; wraparound supports; and advising strategies that incorporate multiple components across the previous three categories.⁴ The study team created subcategories within each of the four broader categories based on a thematic review of the evidence and categorized each intervention examined in the included studies. Table 1 lists the four categories, their subcategories, and the advising goals they address.

² Of the 23 studies that met WWC standards, 19 received the highest rating of *met WWC standards without reservations*. Six studies received a rating of *met WWC standards with reservations*.

³ The WWC reviews were conducted in collaboration with WWC-PEPPER, which reviewed 38 of the 97 studies as part of the development of the *Effective Advising for Postsecondary Students: A Practice Guide for Educators* (Karp et al., 2021).

⁴ The study team included interventions with nonadvising supports, such as emergency financial assistance or performance-based scholarships, if they also had a significant advising component.

Table 1. Advising categories, subcategories, and the goals they address

Category	Subcategory							
		Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7
Academic information and advising	Proactive advising	✓	✓	✓	✓	✓	✓	✓
	Informational interventions			✓	✓	✓	✓	✓
Academic and nonacademic skill building	First-year experience and student success courses		✓	✓	✓	✓	✓	
	Learning communities		✓	✓	✓	✓	✓	
	Mentoring		✓	✓	✓	✓	✓	✓
Wraparound supports	—		✓		✓		✓	
Comprehensive student services and advising	—	✓	✓	✓	✓	✓	✓	✓

Note. Blue checkmarks indicate that the strategy subcategory addresses the corresponding goal. Gray checkmarks indicate that the strategy subcategory has the potential to address the corresponding goal but may not always.

How to Read Evidence Summaries

Each intervention subcategory includes an evidence summary that describes the following:

- Studies with the most rigorous design (met WWC standards) and found a **positive effect** of the intervention on student outcomes
- Studies that met criteria for promising evidence and found a **positive association** between the intervention and student outcomes
- Studies with the most rigorous design (met WWC standards) but found **no effect** of the intervention on student outcomes

Met WWC standards

Met criteria for promising evidence

Academic Information and Advising

Academic information and advising interventions provide direct outreach to students to share resources or information that students need for success in college. Proactive advising and informational interventions are two types of academic information and advising interventions that have a similar goal but take opposing approaches. Proactive advising is intensive, whereas informational interventions are low touch, often provided through text messages and emails. The following sections summarize the evidence for these types of interventions; more information about each and its effect on student outcomes is in Tables B1 and B2 in Appendix B.

Met WWC standards

✓ ✓ ✓ ✗ ✗

Met criteria for promising evidence

✓

Proactive Advising. Direct outreach to students by an advisor or a coach—known as “proactive advising” or “intrusive advising”—focuses on students who may need extra support, such as first-year students, low-income or first-generation students, students on academic probation, or students who have been flagged by an early warning system.

At its best, proactive advising can address all seven goals of advising, and interventions that targeted more advising goals tended to be more likely to show evidence of positive effects on student outcomes. Furthermore, students appeared to benefit most when the outreach was sustained and required or incentivized participation.

Two proactive advising interventions (InsideTrack and Opening Doors) paired students with a coach or an advisor who provided both practical guidance (for example, about applying for financial aid) and coaching to overcome barriers to success through regular meetings. Students who participated in InsideTrack had higher rates of retention (Bettinger & Baker, 2014) and earned more credits (Ott et al., 2020) compared with students who did not. Similarly, students who participated in Opening Doors had higher rates of persistence to the next semester and credit attainment compared with students who did not (Scrivener & Weiss, 2009).

Neither InsideTrack nor Opening Doors required students to meet with an advisor, but InsideTrack provided sustained follow-up using a variety of modes of communication and Opening Doors offered a \$150 stipend per semester for students who attended advising sessions. A fourth study examined an intervention that required students on academic probation to meet with an advisor. In these meetings, advisors helped students identify barriers to success and provided resources to address those barriers. Participants had higher rates of retention compared with other students on academic probation (Abelman & Molina, 2001). In contrast, interventions that involved outreach to students without required follow-up and one-on-one meetings had no effect on student outcomes (Rios, 2019; Schwebel et al., 2012).

Met WWC standards

✓ ✗ ✗ ✗

Met criteria for promising evidence

✓

Informational Interventions. Low-cost informational interventions use text messages or emails to “nudge” students to complete specific actions, such as apply for financial aid or register for classes. They can connect students to academic and nonacademic supports (goals 3–4). Less often, they can help students navigate the complexities of college (goal 5) and life challenges (goal 6), as well as plan for and transition to next steps (goal 7).

Consistent with prior research, nudging was most effective when it was personalized and provided students with an opportunity to interact with a college staff member. Students who participated in an online module that provided information about goal setting, strategies for effective studying, and how to reach out for help had the most positive outcomes when they also received one-on-one coaching (Oreopoulos & Petronijevic, 2019). Another study that met criteria for promising evidence found that students who received a letter with targeted information warning about their debt level, reminding them of the academic requirements of borrowing, and sharing information about how to access financial and career counseling had higher GPAs, accumulated more credits, and were more likely to persist in college compared with students who did not (Stoddard et al., 2017). In contrast, nudge interventions that did not use personalization or require follow-up meetings with advisors had no effect on student outcomes (Bowman et al., 2020; Cannon, 2016; Visher et al., 2011).

Academic and Nonacademic Skill Building

Academic and nonacademic skill-building interventions include interventions such as first-year experience and student success courses, learning communities, and mentoring. The following sections summarize the evidence for these interventions; more information about each intervention and its effect on student outcomes is in Tables B3–B6 in Appendix B.⁵

<p>Met WWC standards</p> <p>☑️ ❌ ❌</p>	<p>Met criteria for promising evidence</p> <p>☑️ ☑️ ☑️</p>	<p>First-Year Experience and Student Success Courses. First-year experience courses and student success courses build academic and nonacademic skills (goals 3–4) and help students establish meaningful relationships (goal 2). Less often, they help students navigate the complexities of college (goal 5) and life challenges (goal 6).</p>
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Only one of three rigorous studies found a positive effect of first-year experience courses on student outcomes, and the positive effect was only for cumulative GPA after 1 year; there was no effect on persistence to the next academic year (Jamelske, 2009). The first-year experience course studied included multiple components that may have contributed to student success, such as linking the course to an academic course with a small number of students, offering credit for participating in the course, providing peer mentoring, and incorporating social events to build connections among students and faculty. However, two studies of similar first-year experience or student success courses found no effects on student outcomes (Rutschow et al., 2012; Weiss et al., 2011).

Three additional studies met criteria for promising evidence. These studies found positive associations between participating in first-year experience courses and student outcomes, including longer term outcomes (Bliss et al., 2012; Karp et al., 2017; Schnell & Doetkott, 2003).

<p>Met WWC standards</p> <p>☑️ ☑️ ☑️</p>	<p>Met criteria for promising evidence</p> <p>☑️ ☑️ ☑️ ☑️ ☑️ ☑️</p>	<p>Learning Communities. Learning communities can run for a full year or one semester, may be designed around a curricular theme, and sometimes require students to live in the same dorm. They typically target three goals of advising: establishing meaningful relationships with students (goal 2) and connecting students to relevant academic and nonacademic supports (goal 3–4). Less often, they help students navigate the complexities of college (goal 5) and life challenges (goal 6).</p>
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The review found nine studies that examined the effect of learning communities on student outcomes, three of which used rigorous methods. Two studies found that students benefited from participating in learning communities with respect to short-term outcomes, such as persistence, but no effect on long-term outcomes (Weiss et al., 2015; Weissman et al., 2012). A third study also found a positive effect on short-term outcomes but did not examine long-term outcomes (Xu et al., 2018).

Six additional studies met criteria for promising evidence. Five of these studies found positive associations between participating in learning communities and short-term outcomes, such as persistence and GPA (Engstrom & Tinto, 2008; Johnson, 2001; Nosaka & Novak, 2014; Stassen, 2003; Walker, 2013). One study also found that participants were more likely than nonparticipants to graduate from college (Nosaka & Novak, 2014). The sixth study found a negative association between participating in learning communities and dropping out of college (Mangold et al., 2002).

⁵ First-year experience and student success courses, learning communities, and tutoring and mentoring are not always distinct. For example, student success courses may be part of a learning community experience. The study team categorized interventions based on how they were discussed by the study authors.

Met WWC standards**Met criteria for promising evidence**

Mentoring. Many of the interventions described in earlier categories included mentoring alongside several other approaches to supporting student success, but four studies examined interventions whose primary focus was mentoring. Mentoring provides an opportunity for a student to develop strong relationships with faculty, staff, or other students (goal 2). Mentors also connect students to relevant academic and nonacademic support (goals 3 and 4) and help students navigate the complexities of college (goal 5) and life challenges (goal 6). Less often, mentors help students plan for and transition to next steps (goal 7).

The two studies of mentoring that met WWC standards varied in their focus and delivery. The first examined a 1-year mentoring program for first-year students, in which faculty and staff served as mentors to students with similar academic interests and met with students at least three times per semester. The study found a positive effect on GPA in the second semester but no effect on GPA in later years (Campbell & Campbell, 2007). The second study examined an ethnic-based mentoring program in which Black upperclassmen mentored Black first-year students, with a focus on supporting their racial identity and sense of belonging on campus. Mentors and mentees met once a week for 1 hour over the course of the year. The study found no effect of the mentoring program on GPA or retention (Thomas, 2005).

Two additional studies met criteria for promising evidence, including one study of an intervention focused on developing study skills in small-group sessions of 2 hours per week (Coladarci et al., 2013), and a second study of a one-on-one mentoring program designed to help first-year students develop academic and social skills (Salinitri, 2005). Both studies found positive associations between participating in the intervention and short-term outcomes like GPA and retention to the next year.

Other Academic and Nonacademic Skill Building. One study met the criteria for promising evidence but did not fit in any of the above subcategories. Students at a large public university could use a centralized advising center to receive a wide range of services, such as academic counseling, goal setting, assistance with degree and major choice, and guidance for using campus resources. Students who used the advising center had higher first-year cumulative GPAs and lower first-year rates of attrition (Kot, 2014).



Wraparound Supports and Services

Met WWC standards

Recognizing the importance of meeting a range of student needs, increasingly colleges offer wraparound supports and services that connect students to supplemental resources, such as counseling, childcare, food and housing assistance, and transportation assistance, among others. Wraparound supports and services typically meet three of the seven goals of advising, including establishing meaningful relationships with students (goal 2), connecting students to relevant nonacademic supports (goal 4), and helping students navigate life challenges (goal 6).

Research on wraparound supports and services is emergent. Two studies evaluated the effect of comprehensive case management programs on college outcomes (see Table B7 in Appendix B). Both studies examined programs (Stay the Course and Single Stop U.S.A.'s Community College Initiative) that provided referrals to resources that students may need to help them be successful on campus, ranging from public benefit application assistance to childcare (Daugherty et al., 2016; Evans et al., 2017). One program—Stay the Course—also provided emergency financial assistance and one-on-one advising and mentoring from a social worker (Evans et al., 2017). The findings were mixed. Stay the Course had a positive effect on persistence and degree attainment for female students but no effect on these outcomes for male students and no effect on GPA or credit accumulation. Single Stop U.S.A.'s Community College Initiative had a positive effect on 1-year persistence but no effect on credit accumulation.

Comprehensive Student Services and Advising

Met WWC standards	Met criteria for promising evidence	Comprehensive student services and advising interventions include interventions that, in addition to advising, provide a comprehensive suite of student services, academic support, and financial aid. Such interventions are holistic, targeting all seven goals of advising, though variation occurred in the specific supports provided (see Table B8 in Appendix B). A well-known comprehensive student services and advising intervention is the City University of New York's (CUNY's) Accelerated Study in Associate Program (ASAP) and its replication at three Ohio community colleges, which combined requirements (e.g., students must enroll full time) with enhanced advising from an advisor with a small caseload, career development services, tutoring, linked courses, first-year seminars, tuition waivers, financial incentives for participation in program services, transportation vouchers, and free textbooks. A random-assignment evaluation of the original ASAP found positive effects on credit accumulation and degree attainment; in fact, graduation rates doubled at 3 years (Scrivener et al., 2015). Similarly, the replication in Ohio found positive effects on credit accumulation and associate's degree attainment after 3 years (Miller et al., 2020).
		

Committed to supporting the success of African American students in science, engineering, and mathematics majors, the Meyerhoff Scholars Program at the University of Maryland Baltimore County provided financial aid, mandatory precollege preparation, access to study groups that provide academic and social support, residential learning communities, regular meetings with program staff, academic advising and personal counseling, tutoring and mentoring, summer research internships, and community involvement. The program set high academic standards for students, and advisors regularly monitored their progress. An evaluation of the program found a positive effect on GPA in science, engineering, and mathematics majors after 4 years but no effect on overall college GPA (Maton et al., 2000).

Two additional studies of comprehensive student services and advising interventions met the ESSA Tiers of Evidence criteria for promising evidence. A study of a comprehensive intervention focused on students majoring in science, technology, engineering, and mathematics found a positive association between participation and credit accumulation and cumulative GPA (Chapman, 2017). Another study of a comprehensive intervention targeted to low-income students at a Hispanic-serving institution found that students who participated in the program had higher GPAs, accumulated more credits, and were more likely to transfer to a 4-year college and attain a college degree compared with students who did not (Saltiel, 2011).

Several key findings emerged from the systematic review.

First, consistent with other reviews (e.g., Karp et al., 2021), the findings from this review suggest strong evidence for comprehensive student services and advising interventions, such as CUNY ASAP (Miller et al., 2020; Scrivener et al., 2015). These types of interventions provide students with a wide range of supports and, in doing so, meet all seven goals of advising. Such comprehensive interventions may be difficult to scale due to the resources required for implementation; one study estimated that CUNY spent an additional \$12,769 per program group member during an 8-year period. However, since the original implementation of ASAP, CUNY has modified program features to be less expensive. The average program costs for the modified ASAP are considerably less at \$3,440 per student (Azurdia & Galkin, 2020), and students continue to benefit (Stumbos & Kolenovic, 2017; Strumbos et al., 2018). These findings suggest that proven models can be accessible to colleges with fewer resources.

Discussion

Second, the findings highlight the importance of proactive communication that provides sustained follow-up spanning a student's trajectory through college. The review found that students benefit when colleges are

proactive in their communication, pair their outreach with consistent follow-up, and provide incentives for students to respond (Bettinger & Baker, 2014; Ott et al., 2020; Scrivener & Weiss, 2009). Increasingly, colleges use text message and email campaigns to reach a large number of students at lower cost. Similar to the findings for proactive interventions, informational interventions such as these are only effective when they provide targeted and actionable information with clear next steps (Oreopoulos & Petronijevic, 2019; Stoddard et al., 2017).

Third, the findings suggest the need to provide a robust set of nonacademic supports through comprehensive case management. Although research on wraparound supports remains emergent, there are indications that such supports can be an important part of an advising strategy (Daugherty et al., 2016; Evans et al., 201y). Now more than ever, college students require a wide range of nonacademic supports to ensure their success in college. Colleges can partner with case management organizations to connect students with mental health supports, childcare, transportation assistance, and access to food and other basic needs that can help them overcome life challenges that may hinder their progress in college. As new evidence emerges, practitioners can learn about the most effective approaches to providing wraparound supports.

Finally, the findings related to academic and nonacademic skill-building interventions—such as first-year experience courses, learning communities, and mentoring programs—are mixed. However, even if on their own these interventions do not move the needle on student outcomes, they can be vital components of a larger student success strategy.

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Appendix A: Systematic Review Methods

In February 2019, the College Completion Network began a systematic review of research on advising policies, practices, and programs that aim to improve student outcomes in college. Traditional narrative reviews tend to collect convenience samples of published studies, making them vulnerable to publication bias. Publication bias occurs because authors, journals, editors, or peer reviewers systematically discourage the publication of nonstatistically significant findings within peer-reviewed publications. To minimize bias in the review process, the team's approach included (a) a fully transparent, multipronged strategy for identifying and obtaining relevant published and unpublished studies; (b) a database that contained study abstracts, links to research documents, and forms that allowed screeners to input judgments; (c) clearly articulated and documented inclusion and exclusion criteria; and (d) an independent quality assurance review of how studies were coded prior to analyzing them.

This appendix describes the methods used to conduct the systematic review, including how the study team screened studies for inclusion in the review, the process for extracting and coding data for studies that met the inclusion criteria, and the process for determining the quality of evidence for each study that met the inclusion criteria.

Key terms are in Box A1.

BOX A1. KEY TERMS

Every Student Succeeds Act Tiers of Evidence. The 2015 reauthorization of the Elementary and Secondary Education Act, referred to as the Every Student Succeeds Act (ESSA), established guidance that district and school leaders adopt evidence-based practices. The ESSA Tiers of Evidence provides a framework for determining which practices are evidence based. Five factors determine a practice's evidence rating: study design, study findings, findings from related studies, sample size and setting, and match between the population or setting of the study and the district or school's population or setting (Regional Educational Laboratory Midwest, 2019). Ratings are given for each combination of outcome measure and sample; that is, in a single study, there may be multiple ratings. Ratings include Tier I (strong evidence), Tier II (moderate evidence), Tier III (promising evidence), Tier IV (demonstrates a rationale), or Does Not Meet Evidence Criteria.

ESSA Tiers of Evidence Criteria for Promising Evidence. The criteria for ESSA Tier III—referred to as promising evidence—include the following: the study must be a well-designed and implemented correlational study with statistical controls for selection bias, have a statistically significant positive effect on a relevant outcome, and have no strong negative findings from experimental or quasi-experimental studies of the same practice or intervention.

Does Not Meet What Works Clearinghouse (WWC) Group Design Standards. Both randomized controlled trials (RCTs) and quasi-experimental design studies can receive a rating of does not meet WWC Group Design Standards. An RCT would receive this rating if it was not well implemented or if it had high levels of attrition and did not establish that the analytic and intervention groups were similar on a set of preintervention measures. A quasi-experimental design study would receive this rating if it did not establish that the analytic and intervention groups are similar on a set of preintervention measures.

Meets WWC Group Design Standards Without Reservations. WWC's highest rating for group design studies. To meet WWC Group Design Standards without reservations, a study must be a well-implemented RCT with low levels of sample attrition.

Meets WWC Group Design Standards With Reservations. WWC's middle rating for group design studies. Quasi-experimental design studies—that is, studies in which there are non-overlapping intervention and comparison groups—and RCTs with high levels of attrition can meet WWC Group Design Standards with reservations if the analytic and intervention groups are similar on a set of preintervention measures specified by the WWC review protocol, which varied by the type of outcome. For continuous outcomes like grade point average (GPA), studies had to demonstrate that the analytic and intervention groups were similar on a measure of academic achievement, such as high school GPA or college entrance exam score. For binary outcomes like degree completion, studies had to demonstrate that the analytic and intervention groups were similar on both a preintervention measure of academic achievement and a preintervention measure of socioeconomic status, such as eligibility for free- or reduced-price lunch in high school, family income, or Pell Grant eligibility.

WWC Group Design Standards. Methodological guidelines that specify how WWC determines the quality of evidence described in a randomized controlled trial or quasi-experimental design study.

WWC Regression Discontinuity Standards. Methodological guidelines that specify how WWC determines the quality of evidence described in a regression discontinuity design study.

Screening Process

The research team employed a three-phase process to ensure that the review was thorough and systematic. During Phase 1, with support from AIR’s librarian, the team conducted a comprehensive search of the literature using search terms informed by input from network members. During Phase 2, the team screened study abstracts for eligibility based on criteria chosen through conversations with network members. These criteria ensured that decisions were made in a consistent, transparent, and efficient manner. During Phase 3, the team screened the full text of all studies determined to be eligible in Phase 2 using the same criteria. The following subsections describe each phase in greater detail.

Phase 1: Literature Search

The research team began by conducting an extensive search of the literature, limiting the search to studies released in English and in 2000 or later. The team searched ERIC and Education Source to identify articles for inclusion in the review. To search these databases, the team developed a Boolean search string. First, the team built a search term table that identified key terms by population, intervention, outcome, and research design (see Table A1). To evaluate the validity of the search string, the team identified studies to include in the results of the search (see Table A2). The goal was to limit the number of citation “hits” while maintaining retrieval of these reference studies. To manage and organize this process, the team logged each string; the total number of hits, as well as the hits per database; and how many of the reference studies were found within the search. After collecting the citations, the team organized them using a Zotero database. Zotero is a free, open-source reference manager that allows researchers to organize citations. The team used this database to eliminate duplicates and provide the final count of the number of abstracts to be screened. In total, the search yielded 2,065 unique references.

Table A1. Search terms

Category	Terms
Population	college* OR university* OR postsecondary OR “post-secondary” OR undergrad* OR “two-year institut*” OR “2-year institut*” OR “2 year institut*” OR “four-year institut*” OR “4-year institut*” OR “4 year institut*” OR “institut* of higher learning” OR “higher education”
Intervention	information OR advising OR “holistic advising” OR “holistic student support*” OR “professional advising” OR “year-round advising” OR “academic advis*” OR “faculty advis*” OR mentor* OR “intrusive advising” OR “proactive advising” OR “developmental advising” OR “culturally responsive advising” OR counseling* OR “student services” OR guidance OR coaching OR “student success coach” OR “Opening Doors” OR “InsideTrack” OR “Inside Track” OR “CUNY Start” OR “Accelerated Study in Associate Program*” OR “ASAP” OR “Integrated Planning and Advising for Student Success” OR “i-Pass” OR “iPass” OR “IPASS” OR “integrated planning and advising services” OR “Early Alert” OR “early-alert systems” OR “text message” OR “text messaging” OR nudg* OR “first-year experience” OR “guided pathways” OR “student success course*” OR “learning communities” OR “learning community”
Outcome	“credit accumulation” OR persistence OR “academic achiev*” OR GPA OR “grade point average*” OR “degree completion” OR “labor market outcomes” OR employ* OR graduation* OR retention* OR completion* OR attainment OR “degree attainment” OR “credit attainment” OR transfer* OR “college success”
Research design	RCT OR experiment* OR randomiz* OR QED OR “Quasi-Experiment*” OR “non-randomized” OR “non-experimental” OR “effectiveness study” OR “efficacy study” OR “effectiveness trial” OR “efficacy trial” OR “propensity score matching” OR matching OR “difference-in-difference” OR “regression discontinuity” OR “single case design” OR “randomly” OR “random assignment” OR “demonstration” OR AB program effectiveness OR AB program evaluation OR TI program effectiveness OR TI program evaluation

Table A2. Reference studies

Study
Bettinger, E. P., & Baker, R. (2011). <i>The effects of student coaching in college: An evaluation of a randomized experiment in student mentoring</i> (NBER Working Paper No. 16881). Cambridge, MA: National Bureau of Economic Research. Retrieved from https://eric.ed.gov/?id=ED517379
Rutschow, E. Z., Cullinan, D., & Welbeck, R. (2012). <i>Keeping students on course: An impact study of a student success course at Guilford Technical Community College</i> . New York, NY: MDRC. Retrieved from https://eric.ed.gov/?id=ED531183
Scrivener, S., & Weiss, M. J. (2009). <i>More guidance, better results? Three-year effects of an enhanced student services program at two community colleges</i> . New York, NY: MDRC. Retrieved from https://www.mdrc.org/sites/default/files/full_450.pdf
Sommo, C., Mayer, A. K., Rudd, T., & Cullinan, D. (2012). <i>Commencement day: Six-year effects of a freshman learning community program at Kingsborough Community College</i> . New York, NY: MDRC. Retrieved from https://www.mdrc.org/sites/default/files/Commencement%20Day%20FR.pdf

The research team also conducted auxiliary searches to ensure that all available studies were found. First, the team hand-searched key journals that have produced a considerable number of studies on college completion, including *New Directions for Community Colleges*, *Community College Review*, *Review of Higher Education*, *Economics of Education Review*, and *Educational Evaluation and Policy Analysis*. Second, the team conducted reference harvesting by reviewing the reference lists of all included studies for other potential studies. Third, the team conducted forward citation searching by collecting all studies that cited the included studies. Finally, the team searched for unpublished working papers by searching working paper repositories, including NBER, EdWorkingPapers at Brown University, MDRC, and the Community College Research Center. In all four cases, the team scanned the title and abstract of each article, excluding studies that clearly did not meet the criteria for inclusion and retaining studies that potentially met the criteria for inclusion for further review.

Phase 2: Abstract Screening

Trained screeners screened abstracts of studies identified in Phase 1 to determine if they met the criteria for inclusion in the review. The project director held a training session to orient screeners to criteria for inclusion. The project team screened 100 abstracts during the session. After the session, the project director assigned each screener 25 abstracts, which they screened simultaneously. After the screening was complete, the project director calculated agreement rates, and the study team met to discuss and reconcile disagreements. Screeners with agreement rates of less than 85% met with the project director for additional training.

Criteria for inclusion and exclusion were developed a priori, with input from network members and the Institute of Education Sciences. Screening criteria included the following:

- **Population.** The review included studies of students currently enrolled at a public or private 2-year or 4-year college in the United States or Canada at baseline or at the beginning of the intervention.
- **Intervention.** The review included studies that focused on interventions related to advising.
- **Outcome Measures.** The review included studies that tested the effect of an intervention on college credit accumulation and persistence, academic achievement, degree completion, and labor market outcomes following degree completion.
- **Research Design.** The review included studies that randomly assigned participants to a condition (a randomized controlled trial [RCT]) and studies that nonrandomly assigned participants (a quasi-experimental design). We also included regression discontinuity designs with an eligible comparison group and single-case designs.

- **Type of Study.** The review included studies that included a primary analysis of the effects of an intervention. If a study did not examine the effects of an intervention or if it was not a primary analysis (e.g., if it was a meta-analysis or other literature review), then it was not eligible for review.

A total of 154 abstracts passed this phase; these articles then moved on to full-text screening. The full list of the abstracts that passed the screening phase is in Appendix C.

Phase 3: Full-Text Screening

Full-text articles were located for all abstracts that met the inclusion criteria. These citations were then screened a second time, using the same inclusion criteria and process for the abstract screening. A total of 92 articles passed this phase; these articles then entered the data extraction and coding phase.

Data Extraction and Coding

After determining which studies were eligible for further review, the project director developed a protocol for coding each study in consultation with the College Completion Network co-principal investigators. The coding protocol included the following components:

- **Study-Level Information.** Details about the publication, including authors, source, and year.
- **Methods Information.** Details about the research design (i.e., the way units were assigned to conditions), the nature of the comparison group (e.g., business as usual, alternative treatment), and the level of treatment assignment (e.g., student, classroom, school).
- **Sample Information.** Characteristics of the students who participated in the study, including sample sizes and demographic characteristics.
- **Intervention Information.** The time point of the intervention (e.g., entry, progress, completion), the focus of the intervention, and the intervention delivery mechanism (e.g., direct instruction, online software delivery, academic advisor or counselor delivery, peer mentor delivery).
- **Outcome Information.** Outcomes measured in the study (e.g., credit accumulation, persistence, academic achievement, degree completion, transfer, labor market outcomes).
- **Contextual Information.** Details about the type of college (e.g., 2-year college, 4-year college), geographic location, urbanicity, and scale of implementation (e.g., statewide, within a community college system, at a single campus).

Determining the Quality of Evidence

After coding the articles, the study team used a three-step process to determine the quality of evidence for each study. First, the study team consulted the What Works Clearinghouse (WWC) review of individual studies database to determine which studies that passed the Phase 2 screening process have already been reviewed by WWC for past single study reviews, intervention reports, and practice guides.⁶ The study team found that 25 studies had been reviewed by WWC. Second, the study team collaborated with WWC-PEPPER, which reviewed 38 of the 97 studies as part of the development of the Effective Advising for Postsecondary Students Practice Guide (Karp et al., 2021). The study team worked with WWC-certified reviewers to conduct official WWC reviews of the remaining 23 studies. The study team used a review protocol that was similar to the protocol used by WWC-PEPPER for the practice guide reviews.

⁶ The WWC Review of Individual Studies Database can be found here: <https://ies.ed.gov/ncee/wwc/ReviewedStudies#/OnlyStudiesWithPositiveEffects:false%7CSetNumber:1%7CEssaRatingId:0.1.2.3>

All studies that met WWC group design or regression discontinuity standards were included in the review. Studies that did not meet WWC standards were reviewed again against the Every Student Succeeds Act (ESSA) Tiers of Evidence criteria. The study team used a customized database to rate each finding, which is the combination of an outcome measure and sample. For example, if the study authors examined five outcome measures and had three samples (e.g., full sample, male students, female students) the study would have 15 findings and each would have its own rating for a total of 15 ratings. Ratings were based on the following information:

- **Findings.** Does a statistically significant association exist between the intervention and a favorable outcome?
- **Design.** Does the study meet WWC Group Design Standards with or without reservations or is the study a correlational study with statistical controls for the selection factors?
- **Sample.** Does the study have more than two sites and 350 students or does the study have more than 50 schools, classrooms, or teachers?
- **Other Findings.** Do other studies that meet WWC Group Design Standards with or without reservations show a statistically significant association with an unfavorable outcome?

Using this information, the study team determined which study had at least one finding that met the criteria for promising evidence (described in Table A3), which is the highest rating that a study that does not meet WWC standards can receive. Studies with at least one finding that met the criteria for promising evidence were included in the review, but only findings that had promising evidence were discussed.

Table A3. Mapping findings to ESSA levels of evidence

Level of evidence	Finding	Design	Sample	Other findings
Strong evidence	Statistically significant association between intervention and favorable outcome	Meets WWC standards without reservations (can detect causal associations)	2+ sites and 350+ students or 50+ schools, classrooms, or teachers	No other studies meeting WWC standards show statistically significant association with unfavorable outcome
Moderate evidence	Statistically significant association between intervention and favorable outcome	Meets WWC standards with reservations (can detect causal associations)	2+ sites and 350+ students or 50+ schools, classrooms, or teachers	No other studies meeting WWC standards show statistically significant association with unfavorable outcome
Promising evidence	Statistically significant association between intervention and favorable outcome	Correlational study with statistical controls for selection factors (cannot detect causal associations)	No sample size criteria	No other studies meeting WWC standards show statistically significant association with unfavorable outcome
Demonstrates a rationale	An effort to study the effects of the intervention is planned or currently underway	Well-defined logic model based on rigorous research	No sample size criteria	No criteria related to other findings

Adapted from U.S. Department of Education. (2016). *Non-regulatory guidance: Using evidence to strengthen education investments*. <https://ed.gov/policy/elsec/leg/essa/guidanceuseinvestment.pdf>

In total, 22 studies met WWC group design or regression discontinuity design standards either with or without reservations. Among the 70 studies that did not meet WWC standards, 16 studies had a least one finding that met the ESSA Tiers of Evidence criteria for promising evidence. These 38 studies were included in the review.

Limitations

This systematic review has three primary limitations.

First, this review may not reflect the full body of evidence on advising. The literature search was conducted at a single point in time. New studies are constantly released, and therefore this review may have excluded important and relevant studies produced after the literature search was conducted. In addition, although the literature search was designed to be comprehensive, there may have been studies inadvertently excluded from the review. For example, the search terms used to perform the database search may not have been exhaustive or may have otherwise been written and combined in a way that missed studies that should have been included. The approach to reviewing unpublished literature also may not have been sufficiently exhaustive. The findings from this review should be interpreted with caution, recognizing that there may be additional evidence not included.

Second, this review is not a meta-analysis and therefore does not provide information about the magnitude of effect sizes across multiple interventions of the same type, nor does it examine treatment effect heterogeneity. Future research that uses meta-analytic methods can identify the types of college advising interventions and their features that are most strongly associated with improved student outcomes, and quantify the heterogeneity in treatment effects across studies with different research designs, student populations, outcome measures, and settings.

Finally, most of the studies included in this review examined interventions with at least two components, and some had many more. For example, ASAP included a wide range of student supports, including enhanced advising from an advisor with a small caseload, career development services, tutoring, linked courses, first-year seminar, tuition waivers, financial incentives for participation in program services, transportation vouchers, and free textbooks. This review cannot isolate which of these specific components are the “active ingredients” of the interventions and their relative contributions to student success.

Appendix B: Detailed Findings for Included Studies

This appendix shares detailed summaries of the 38 studies included in the review, including a description of the intervention, the setting for the study, and the findings. The tables correspond to the categories in the main text.

Table B1. Summary of evidence for proactive advising

Study	Summary of Intervention	Setting	Findings
Meets Standards Without Reservations			
Abelman & Molina (2001)	Full intrusion: Students received a letter stating that they had been placed on academic probation and were required to meet with an advisor, followed by a phone call to schedule an in-person appointment. The student and the advisor developed a plan for returning to good academic standing, which included access to relevant resources and meetings with counselors and tutors. The student signed a contract indicating that he or she would follow through with the action plan.	Medium-sized public university in an urban setting in the Midwest	Statistically significant, positive effect on 3-year retention.
	Moderate intrusion: Students received a letter stating that they had been placed on academic probation, followed by a brief phone call from an advisor to review the letter, identify resources at the university that could support them, and develop a plan for returning to good academic standing.		No effect on retention.
Bettinger & Baker (2014)	InsideTrack: Students were paired with a coach whose goal was to help students overcome academic and personal barriers to success. Coaches connected with students by phone, email, text message, or social media, and typically worked with students for two semesters. Coaches used information about student performance and participation to know what issues to focus on and at what times.	Eight colleges, including both 2-year and 4-year colleges and public, private not-for-profit, and proprietary colleges	Statistically significant positive effect on retention at 6 months, 12 months, and 18 months. No effect on degree attainment or retention at 2 years.
Rios (2019)	During the first 6 weeks of the school year, advisors conducted preliminary outreach to their assigned students through an early alert system . Students could use the system to schedule appointments with their advisors and communicate with them throughout the semester. Faculty could use the system to flag early signs of academic struggle. Once a student was flagged, advisors could use the system to refer students to academic support services and track students' progress.	Community college in a suburban setting in the Northeast	No effect on first-semester college GPA, first-year college GPA, or percentage of credits earned in the first semester.
Schwebel et al. (2012)	Students were randomly assigned to receive outreach from advisors during each semester of enrollment over 4 years. Advisors contacted students by email during the third week of each semester. If they had not scheduled an advising appointment by the fourth and fifth weeks of the semester, they were contacted again. Students in the comparison group received typical communication about advising with no additional outreach.	Large public university in an urban setting in the South	No effect on cumulative GPA, graduation in 4 years, or credit accumulation.

Study	Summary of Intervention	Setting	Findings
Scrivener & Weiss (2009)	Low-income first-year students were randomly assigned to participate in enhanced advising from Opening Doors counselors. Counselors had small caseloads, enabling them to meet with students at least two times per semester to discuss topics such as course selection, registration, financial aid, tutoring, work-based learning, balancing school and work, career planning, and personal issues. The counselors referred students to other services on campus as necessary. Participating students also received a stipend of \$150 per semester for two semesters.	Two community colleges in suburban settings in the Midwest	Statistically significant, positive effect on credit accumulation after 4 semesters (female students). No effect on credit accumulation after 3 semesters, and persistence after 4 semesters.
Does Not Meet Standards, But Has Promising Evidence of Success			
Ott et al. (2019)	InsideTrack: Students who were selected for coaching met with their assigned coaches to discuss time management, progress on the FAFSA application, knowledge of campus resources, and more during their first semester in college. Meetings could occur by phone, text message, or email.	Two community colleges in suburban and rural settings in the West	Statistically significant, positive effect on total credits earned after 1 year.

Table B2. Summary of evidence for informational interventions

Study	Summary of Intervention	Setting	Findings
Meets Standards With or Without Reservations			
Bowman et al. (2020) ^a	College of Engineering students on academic probation were randomly assigned to receive information about how to return to good academic standing and how to complete an academic performance improvement plan, which the authors described as a goal-setting intervention . They also had the opportunity to meet with an advisor to review the plan. Students in the comparison group received the same information about returning to good academic standing, but no additional information about an academic performance improvement plan or the opportunity to meet with an advisor.	Large public university in the Midwest	No effect on college GPA at the end of the semester.
Cannon (2016)	First-year students were randomly assigned to receive daily text messages focused on how to use campus supports, awareness of upcoming deadlines, opportunities to set goals, and self-affirmation activities. Students were able to respond to the messages, which were worded to elicit a yes/no response, which then led to an automated reply. If students responded with a question, a customized response was provided.	Medium-sized public university in a suburban setting in the West	No effect on college GPA at the end of year 1 or persistence to year 2.

Study	Summary of Intervention	Setting	Findings
Oreopoulos & Petronijevic (2019)	Online coaching plus one-way texting: Students participated in an online module that provided information about goal-setting, strategies for effective studying, and reaching out for help. Students also engaged in mindset activities that helped them think about their future aspirations. Students received follow-up text messages or emails through the academic year but were not able to reply to the messages.	Three campuses of a public university in urban and suburban settings in Canada	Statistically significant, positive effect on credits earned after 3 years. No effect on final GPA after 1–3 years, persistence to years 2–3, or credits earned after 1–2 years.
	Online coaching plus two-way texting: Students participated in the same online module described above. They also received personalized text messages or emails through the remainder of the academic year, but they were encouraged to respond and ask questions. Coaches were able to follow up to answer questions and provide support on a weekly basis.		No effect on final GPA after 1–3 years, persistence to years 2–3, or credits earned after 1–2 years.
	Online and face-to-face coaching: Students participated in the same online module described above. They also received one-on-one coaching for 30–60 minutes per week focused on topics ranging from major selection to addressing students’ emotional well-being.		Statistically significant, positive effect on credits earned after 3 years. No effect on final GPA after 1–3 years, persistence to years 2–3, or credits earned after 1–2 years.
Visher et al. (2016)	First-time students received targeted and personalized nudges through a variety of formats (emails, text messages, messages through the college portal, and robocalls) urging them to complete an academic plan using My Academic Plan, a computer-based academic planning tool. Following the nudges, they were guaranteed a counseling appointment . Students were randomly assigned to two intervention conditions: a 1-hour one-on-one counseling session or a 2-hour group workshop. The counseling sessions focused on supporting students in using the academic planning tool. Students in the comparison group neither received nudges nor guaranteed counseling appointments.	Community college in a suburban setting in the West	No effect on enrollment the following semester.
Does Not Meet Standards, But Has Promising Evidence of Success			
Stoddard et al. (2017)	Students who met a specific threshold for student loan debt received a letter with targeted information that provided a warning about their debt level, encouraging statements about academics and the academic requirements of borrowing, and information about how to access financial and career counseling.	Large public university in a suburban setting in the West	Statistically significant, positive effect on fall and spring GPA, fall and spring credit accumulation, and persistence to semesters 2–3.

Notes: ^a These authors also shared findings from an early analysis of the intervention using a regression discontinuity design. The study did not meet WWC standards for regression discontinuity designs, but did meet WWC standards for group design studies without reservations for the analysis of the randomized controlled trial.

Table B3. Summary of evidence for first-year experience and student success courses

Study	Summary of Intervention	Setting	Findings
Meets Standards With or Without Reservations			
Jamelske (2009)	The goal of the first-year experience (FYE) program was to help students integrate both academically and socially into the campus community by embedding curricular and extracurricular elements into first-year academic courses. Each FYE section was linked to a specific course, limited to 20 students, and counted for three credits. All FYE sections had a peer mentor and incorporated social and academic activities (e.g., service learning, field trips, attending events on campus) to build connections among students and between faculty and students.	Medium-sized public university in an urban setting in the Midwest	Statistically significant, positive effect on cumulative GPA after one year. No effect on persistence to the next academic year.
Rutschow et al. (2012)	Students in developmental education were randomly assigned to participate in a two-credit student success course that focused on developing psychosocial skills, such as self-awareness, time management skills, and self-management. Instructors were trained to teach the course at a three-day seminar and through ongoing professional development.	Community college in a suburban setting in the South	No effect on GPA or persistence after 3 semesters.
Weiss et al. (2011)	Original Opening Doors: Students on academic probation were randomly assigned to participate in a one-semester college success course, taught by a college advisor. The course was designed to help students set goals, understand college expectations, and develop study skills. Students also were encouraged to visit the Success Centers at the college and meet one on one with the instructor of the college success course outside of class.	Community college in a suburban setting in the West	No effect on GPA, persistence, credit accumulation, or degree attainment.
	Enhanced Opening Doors: The Enhanced Opening Doors program involved the same college success course, but the course was offered for two semesters instead of one. In addition, students were required, rather than encouraged, to visit the Success Centers nine times.		No effect on GPA, persistence, credit accumulation, or degree attainment.

Study	Summary of Intervention	Setting	Findings
Does Not Meet Standards, But Has Promising Evidence of Success			
Bliss et al. (2012)	Students participated in the University of Utah's Learning, Achievement, Engagement, and Progress (LEAP) program, an optional two-semester FYE. In each semester, students participated in a discussion-based, general education course taught by the same professor and with the same peers. The courses were designed around a particular interest or major. Students also had access to a peer tutor and linked courses in writing, library research techniques, service learning, and major selection.	Large public university in an urban setting in the West	Statistically significant, positive effect on persistence to the next academic year, GPA in semesters 1–2, credits attempted and completed in semester 1, and 4-year and 6-year graduation rates for female students. No effect on last GPA, graduating GPA, or credits attempted and completed in semester 2.
Karp et al. (2017)	Students participated in Bronx Community College's first-year seminar , which combined academic content with academic and social support. Students received instruction in time management, how to access campus resources, academic planning, and basic academic skills (reading, writing, and critical thinking). Class sessions were 2 hours instead of 1 hour, and instructors received sustained professional development. Dedicated advisors and peer mentors were assigned to the program.	Community college in an urban setting in the Northeast	Statistically significant, positive effect on semester 1 GPA, semester 1 credit accumulation, retention to semester 2 and to year 2, and GPA and credits earned after 1.5–2.5 years of enrollment, depending on the cohort.
Schnell et al. (2003)	Students participated in a first-year seminar that included an orientation to the campus and a focus on academic success, personal learning styles, time management, goal setting, stress management, responsible decision making, and career planning.	Medium-sized public university in the Midwest	Statistically significant, positive effect on 4-year graduation rate and 5-year graduation rate.

Table B4. Summary of evidence for learning communities

Study	Summary of Intervention	Setting	Findings
Meets Standards With or Without Reservations			
Weiss et al. (2015)	Students at Kingsborough Community College were randomly assigned to participate in the one-semester Opening Doors Learning Communities program or business as usual. The hallmark of the program was a learning community in which up to 25 students took three linked courses together, including an English course, an academic course required for the students' major, and a one-credit freshman orientation course that taught time management and study skills. In addition, participating students received enhanced counseling and support from a case manager, tutoring, textbook vouchers, and social events. Faculty had reduced course loads and counselors had reduced caseloads.	Community college in an urban setting in the Northeast	Statistically significant, positive effect on persistence in any college and being registered in any course through the third post-program semester. No effect on persistence in any other semester and degree attainment, earnings, and employment up to 7 years later.

Study	Summary of Intervention	Setting	Findings
Weissman et al. (2012)	Students in developmental English courses at two community colleges were randomly assigned to participate in learning communities . At Merced College, the developmental English courses were linked with a variety of other developmental or college-level courses. Each learning community was organized around a theme, and instructors developed curricula that reflected this theme. At the Community College of Baltimore County, developmental reading or writing was linked to a variety of college-level courses and a weekly, 1-hour course that helped students make connections across their linked courses and reinforce the instruction in each course.	Community college in a rural setting in the West and community college in a suburban setting in the Mid-Atlantic	At Merced College, there was a statistically significant, positive effect on credits attempted and earned during the program semester; at Community College of Baltimore County, there was no effect. For both colleges, there was no effect on registration in the postprogram semester or on cumulative credits earned.
Xu et al. (2018)	First-year students majoring in biological sciences with low math SAT scores were assigned to participate in the Enhanced Academic Success Experience (EASE) , a learning community in which students were grouped into cohorts of 30 students each. Students in each cohort enrolled in the same set of core courses each semester of their first year. They also received additional academic and social support through peer mentoring	Large public university in a suburban setting in the West	Statistically significant, positive effect on year 1 GPA.
Does Not Meet Standards, But Has Promising Evidence of Success			
Engstrom & Tinto (2008)	Academically underprepared, low-income students participated in learning communities at 13 2-year colleges across the country. The learning community models varied across colleges, but typically involved co-registration or block scheduling that allowed students to take courses together, sometimes in linked sequences. Students often took a credit-bearing course alongside a non-credit-bearing, basic skills course and received extra support from student services professionals.	13 community colleges across the country	Statistically significant, positive effect on persistence to the second year of college
Johnson (2001)	Students at the University of Southern Maine who participated in the Russell Scholars Program lived together in a dorm on campus, took a series of core courses together, and received support for developing an individualized learning plan from a faculty mentor. Students who were selected for the program tended to have strong academic qualifications.	Medium-sized public university in urban and rural settings in the Northeast	Statistically significant, positive effect on retention after 2 years. No effect on cumulative GPA after 2 years.
Mangold et al. (2002)	In the Freshman Academic Support and Tracking (FAST) program , cohorts of first-year students registered for courses as units, sharing 9 hours of courses in the fall and 6 hours in the spring. They also met weekly with faculty mentors, who were trained to address issues related to the transition to college.	Large public university in a suburban setting in the Southwest	Statistically significant, negative effect on dropout within 5 years.

Study	Summary of Intervention	Setting	Findings
Nosaka & Novak (2014)	The Key Communities program at Colorado State University targeted students with persistently low levels of academic preparation. The program included five learning communities with 75–150 students each. First-year Key students lived together in a campus dorm and participate in a shared curricular experience that included two academic courses and a seminar. Students received peer mentoring and participated in community-building activities. They also received ongoing feedback on their performance and progress.	Large public university in a suburban setting in the West	Statistically significant, positive effect on retention to the second year and graduation within 4 years, 5 years, and 6 years.
Stassen (2003)	Residential Academic Program: Open to all first-year students; students live in a common residence hall and enroll in a common freshman writing course. Students also choose from among a range of general education courses, each of which has small discussion sections reserved for learning community participants.	Large public university in the Northeast	Statistically significant, positive effect on first-semester GPA and persistence to year 2.
	Talent Advancement Program: Students with specific majors are invited to participate in a learning community designed by their major department. Students take at least two courses together and participate in a freshman seminar.		Statistically significant, positive effect on semester 1 GPA and persistence to year 2 (1999 cohort).
	Honors College Learning Community: Students who were admitted to the university’s Honors College participated in a variety of small, thematic learning communities alongside two honors general education courses per semester.		Statistically significant, positive effect on first-semester GPA. Statistically significant, positive effect on persistence to year 2 (1999 cohort).
Walker (2013)	Students participated in a linked learning community , which involved taking English, history, developmental math, and a learning frameworks course together. These courses were chosen because they are core courses that all incoming first-year students are required to take.	Large community college in an urban setting in the Southwest	Statistically significant, positive effect on course grades in the four linked courses. No effect on persistence to the next semester.

Table B5. Summary of evidence for mentoring

Study	Summary of Intervention	Setting	Findings
Meets Standards With or Without Reservations			
Campbell & Campbell (2007)	First-year students at a large metropolitan university in California were provided the opportunity to participate in a 1-year mentoring program . Faculty and staff were recruited to serve as mentors to students with similar academic interests. Mentors set up an initial meeting with their mentees to discuss individual goals and expectations, and then met with their mentees at least three times per semester over 1 year.	Large university in an urban setting in the West	Statistically significant, positive effect on semester 2 GPA. No effect on cumulative GPA after 8 years.

Study	Summary of Intervention	Setting	Findings
Thomas (2005)	Incoming first-year students who identified as Black were randomly assigned to receive ethnic-based mentoring from 3rd- and 4th-year students who identified as Black. Mentors and mentees met once a week for 1 hour over the course of the year. Mentors were trained to support their mentees' racial identity, sense of belonging, and leadership skills, as well as provide social, academic, and psychological support.	Large university in an urban setting in the Midwest	No effect on cumulative GPA or retention.
Does Not Meet Standards, But Has Promising Evidence of Success			
Coladarci (2013)	First-year students had the opportunity to participate in the UMaine Tutor program, which provided academic support by developing students' study skills. In small groups, students received 2 hours of tutoring per week, focused on effective notetaking, exam preparation, and time management from a trained peer tutor.	Medium-sized public university in a suburban setting in the Northeast	Statistically significant, positive effect on fall GPA and fall-to-fall retention.
Salinitri (2005)	First-year, low-achieving students at the University of Windsor had the opportunity to receive one-on-one mentoring through the Teachers' Interfaculty Mentorship Efforts (TIME) . The mentoring focused on helping first-year students develop academic and social skills to adapt to their new environment. The mentors were teacher candidates.	Medium-sized public university in an urban setting in southeast Canada	Statistically significant, positive effect on final GPA and first-semester GPA.

Table B6. Summary of evidence for other advising approaches

Study	Summary of Intervention	Setting	Findings
Does Not Meet Standards, But Has Promising Evidence of Success			
Kot (2014)	Students could attend a centralized advising center , where advisors provided a wide range of services, including academic counseling, goal setting, assistance with degree and major choice, and guidance for using campus resources.	Large public university in an urban setting	Statistically significant, positive effect on first-year cumulative GPA and statistically significant, negative effect on first-year attrition.

Table B7. Summary of evidence for wraparound supports

Study	Summary of Intervention	Setting	Findings
Meets Standards With or Without Reservations			
Evans et al. (2017)	Low-income community college students at the Trinity River Campus of Tarrant County College were randomly assigned to participate in Stay the Course , which provided students with emergency financial assistance and comprehensive case management. Participants were paired with a social worker (called a navigator) who provided mentoring, advising, and referral to community social services (such as childcare).	Community college in an urban setting in the Southwest	Statistically significant, positive effect on persistence and associate's degree attainment after 6 semesters (female students). No effect on college GPA or credit accumulation.

Study	Summary of Intervention	Setting	Findings
Daugherty et al. (2016)	Through offices located on college campuses, Single Stop U.S.A.’s Community College Initiative connected students to public benefits and provided free services such as application assistance for public benefit programs, tax services, legal services, and case management and referral services to resources for housing, food, childcare, and counseling.	11 community colleges in urban settings in the Northeast and South	Statistically significant, positive effect on persistence to year 2. No effect on the percentage of attempted college credits that were completed or credit accumulation after 2 semesters.

Table B8. Summary of evidence for comprehensive student services and advising

Study	Summary of Intervention	Setting	Findings
Meets Standards With or Without Reservations			
Maton et al. (2000)	The Meyerhoff Scholars Program provided high-achieving, African American students majoring in science, engineering, or mathematics with comprehensive financial aid, mandatory precollege preparation, study groups that provide academic and social support, residential learning communities, regular meetings with program staff, academic advising and personal counseling, tutoring and mentoring, summer research internships, and community involvement. The program set high academic standards, and advisors regularly monitored students and tracked their progress.	Medium-sized public university in an urban setting in the Mid-Atlantic	Statistically significant, positive effect on GPA in science, engineering, and mathematics majors after 4 years. There was no effect on overall college GPA after 4 years.
Miller et al. (2020)	Accelerated Study in Associate Program (ASAP) , originally implemented at community colleges in New York, was replicated at three community colleges in Ohio. The intervention provided a comprehensive suite of student services and financial and academic support, including enhanced advising, career-development services, tutoring, tuition waivers, a \$50 monthly incentive for participation in program services, and textbook vouchers. In addition, students participated in a condensed schedule, blocked courses, and a first-year seminar.	Three community colleges in urban and suburban settings in the Midwest	Statistically significant, positive effect on earning a degree from any college after 3–6 semesters, earning an associate’s degree after 6 semesters, and credit accumulation after 1–5 semesters and after 3 years. No effect on bachelor’s degree attainment.

Study	Summary of Intervention	Setting	Findings
Scrivener et al. (2015)	Low-income students in developmental education were randomly assigned to participate in ASAP . As a condition of participation, they were required to enroll in college full time. They also were encouraged to take developmental courses early in their college career and graduate within 3 years. In addition, they received academic advising from a dedicated advisor with a low caseload, participated in blocked or linked courses in their first year, enrolled in a first-year seminar that taught goal setting and study skills, and received financial support in the form of tuition waivers, free public transportation, and free use of textbooks.	Three community colleges in urban settings in the Northeast	Statistically significant, positive effect on enrolling in a 4-year college after 6 semesters, credit accumulation after 3 years, and earning a degree from any college after 5–11 semesters and 6 years. No effect on enrollment at any college after 1 semester, earning a degree from any college after 3 semesters, and bachelor's or graduate degree attainment after 6 years.
Does Not Meet Standards, But Has Promising Evidence of Success			
Chapman (2017)	Students who were admitted to the college's Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program received a scholarship of \$3,500 for up to four semesters, access to authentic experiences such as internships and undergraduate research, mentoring from faculty members and industry professionals, tutoring, academic advising, and more.	Community college in an urban setting in the West	Statistically significant, positive effect on academic progress (number of credits earned divided by number of terms completed) and cumulative GPA.
Saltiel (2011)	Low-income students at a Hispanic-serving institution were invited to participate in a comprehensive support and access intervention program , which provided students with scholarship incentives, tuition waivers, free textbooks, and monthly public transit vouchers; block scheduling that helped students balance school, work, and home, as well as enabled participating in a learning community; comprehensive advising and assistance with career planning; and supplemental instruction through tutoring. Students met with advisors at least twice per month, and advisors communicated with faculty to monitor students' progress. Advisors also provided workshops on study skills, time management, and resilience.	Community college in an urban setting in the Mid-Atlantic	Statistically significant, positive effect on credits earned in each semester for semesters 1–4 and overall, transfer to a 4-year college without graduating, GPA in the first semester, persistence to semesters 3–4, and degree attainment.



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