

# Effective Advising for Postsecondary Students

A Practice Guide for Educators

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# Practice Guide on Effective Advising for Postsecondary Students

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# Introduction to the Practice Guide on Effective Advising for Postsecondary Students

Students enter postsecondary institutions to change their lives in some way, with degree pursuits providing opportunities to grow academically, socially, and professionally. However, significant numbers of students are unable to meet the goals they had set for themselves when they entered college. About 40 percent of undergraduate students at 4-year institutions had not graduated 6 years after starting their program, as reported by the National Center for Education Statistics.<sup>1</sup> Similarly, 41 percent of students at 2-year degree-granting institutions either had not graduated or were not enrolled in another institution 3 years after starting their program.<sup>2</sup>

College students face challenges that, if unaddressed, can lead them to drop out of their postsecondary institution.

These challenges include social, informational, and academic obstacles to college completion stemming from the demands of college life inside and outside of the classroom, misalignment between high school and college academic expectations, and a general lack of guidance and information.<sup>3</sup> Though postsecondary institutions might offer supports that could help students navigate these challenges, students are often unaware of these supports or might have difficulty accessing them because the supports are either limited or offered at inconvenient times or locations.

At its most effective, advising is a collaborative process between a student and an advisor designed to help the student realize their educational potential. Most postsecondary

See the **Glossary** for a full list of key terms used in this guide and their definitions. These terms are underlined when first introduced in the guide.

institutions have historically used advisors to help students select and register for courses, but postsecondary institutions are increasingly asking advisors to play an instrumental role in helping students progress through college. This expanded advising role often involves ensuring students are connected to both academic supports and non-academic supports that enable students to overcome barriers to persistence and completion.<sup>4</sup> In this expanded role, advisors help students formulate personal, academic, and career goals; navigate college requirements and resources; develop study skills; make sound decisions about financing college; balance academic and non-academic obligations such as work or childcare; and overcome other social, emotional, or academic barriers they might face.

Developed by the **What Works Clearinghouse™** (WWC) in conjunction with an expert panel, this guide draws upon studies of effective postsecondary student advising systems and practices. The expert panel believes the impacts of advising are magnified when advising is integrated within a broader structure of holistic student support. Holistic student support provides all students with the types and intensities of information, services, and resources they need to identify, select, and progress on the best pathway to achieve their educational and career goals. Holistic student support meets students where they are developmentally, addresses their individual needs, leverages their strengths, and focuses on student learning and development.

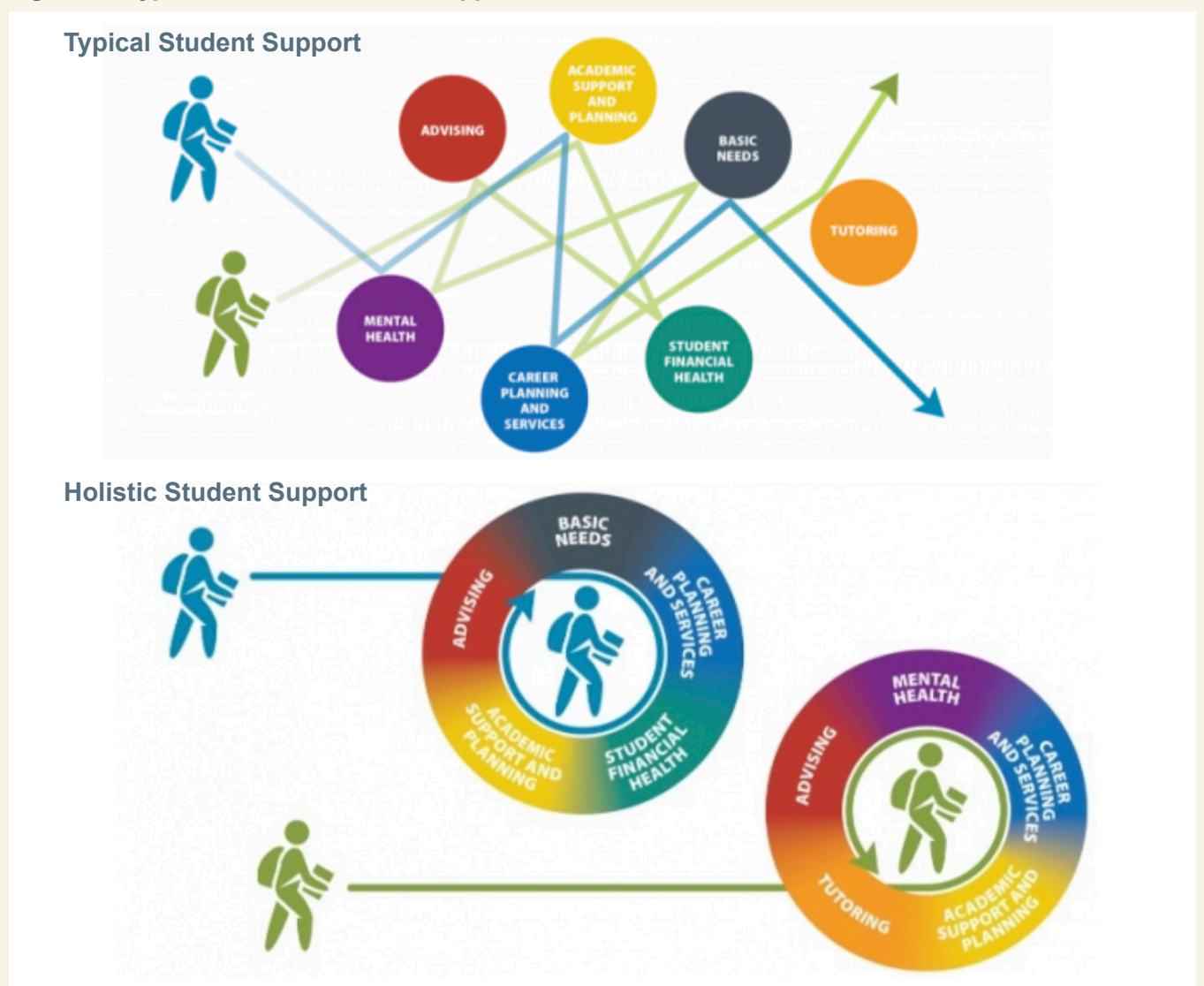
A holistic approach to student supports—where advisors and other support staff help the student make seamless and timely connections to the student-specific supports they need—is thought to be more effective than is the typical approach. The typical, non-holistic approach might offer

students a wide set of supports, but the supports are disconnected. Then students, too often, are expected to navigate the supports available to them on their own, which can result in their accessing supports haphazardly, if at all. The difference between colleges providing access to student supports holistically and non-holistically is illustrated by Figure I.1, which was developed by Achieving the Dream.<sup>5</sup>

When integrated within a holistic student support model, advising plays a central role in helping students navigate the complicated systems and

experiences of college by connecting students to a wide range of supports and opportunities. Advisors often develop educationally purposeful relationships with students to engage, challenge, and support them as they plan their academic journey and to help them connect to academic and social supports in college. Under a holistic approach to supporting students, advisors' guidance is meant to contribute to students' persistence toward degree completion and help prepare them to transition into employment or further education.

**Figure I.1. Typical vs. holistic student support**



Source: Achieving the Dream (2020).

Advising is increasingly provided by trained and designated “academic advisors” (referred to as “counselors” in some states), though student support staff, faculty, and peers, among others, might also contribute to advising activities.

Students often do not make distinctions among the formal titles or roles of the individuals advising them. Rather than the role or title, the panel believes that what matters is there be an individual, or a team of individuals, available to effectively guide and support students.

### Who Might Find This Guide Useful?

The primary audience for this guide is staff members at community colleges, 4-year institutions, and other public or private technical colleges who are responsible for designing and/or delivering advising to students. This includes academic advisors, faculty advisors, deans, registrars, program directors, other administrators, and student support staff, such as counselors, mentors, coaches, and tutors. Institutional leaders, such as presidents and boards, can also use this guide to inform how they support the design and delivery of student advising.

The recommendations in this guide will also be useful for local, state, and federal policymakers responsible for providing the funding that could shape postsecondary advising policies and practices. Funders and grant-makers might also find this guide to be helpful when considering whether the postsecondary programs and initiatives they support include robust, evidence-based approaches to student advising.

Finally, the guide summarizes the rigorous research evidence on best practices that support its recommendations, which could help identify knowledge gaps that researchers could address in the future.

### Using Evidence to Develop the Recommendations

This practice guide adds to the existing body of literature on postsecondary student advising by synthesizing the evidence from group design studies to make four evidence-based recommendations for designing and delivering comprehensive, integrated advising to support students’ educational success. Each recommendation includes examples of advising strategies and how to implement them, advice on how to overcome potential obstacles, and a summary of the research evidence that supports the recommendation.

The expert panel created a practice guide protocol to guide the evidence search and review.<sup>6</sup> Under that protocol, trained and WWC-certified reviewers summarized findings from eligible studies (see **Box 1**) that meet evidence standards for consideration by the panel.<sup>7</sup> The number of studies identified, screened, and reviewed is summarized in **Figure B.1** (see **Appendix B**).



**Box 1. Study eligibility criteria**

Eligible research (1) used a comparison group design; (2) included an advising intervention with a primary focus on supporting students' postsecondary success during or after college; (3) involved students enrolled in a postsecondary education institution in the United States or Canada; (4) was published in 1999 or later; and (5) reported on one or more outcomes in the following domains: (a) progressing in college, (b) academic achievement, (c) postsecondary degree, (d) credential attainment, and (e) post-graduation outcomes.

After considering the evidence, the expert panel drafted the recommendations and assigned a level of evidence to each (see **Box 2**).

The guide's four recommendations and the panel's strength-of-evidence assessment are shown in **Table 1**. Recommendations 1-3 focus on how to design or transform advising within a holistic student support model. Recommendation 4 focuses on how to engage and sustain student involvement in advising.

**Box 2. Levels of evidence**

**Minimal:** Evidence may not meet WWC standards or may exhibit inconsistencies, but the panel determined that the recommendation must be included because the intervention is based on strong theory, is new and has not yet been studied, or is difficult to study with a rigorous research design.

**Moderate:** There is some evidence meeting WWC standards that the practices improve student outcomes, but there may be ambiguity about whether that improvement is the direct result of the practices or whether the findings can be replicated with a diverse population of students.

**Strong:** There is consistent evidence that meets WWC standards and indicates that the practices improve student outcomes for a diverse population of students.

**Table 1. Recommendations and corresponding levels of evidence**

Practice Recommendation	Level of Evidence		
	Minimal	Moderate	Strong
1. Intentionally design and deliver comprehensive, integrated advising that incorporates academic and non-academic supports to empower students to reach their educational goals.		●	
2. Transform advising to focus on the development of sustained, personalized relationships with individual students throughout their college career.			●
3. Use mentoring and coaching to enhance comprehensive, integrated advising in ways that support students' achievement and progression.			●
4. Embed positive incentives in intentionally designed advising structures to encourage student participation and continued engagement.			●

Throughout the practice guide, the authors refer to the specific interventions that were examined in the 21 studies that meet WWC standards and provide the evidence for this practice guide (see **Table 2**). Readers can refer back to this table to be reminded of some of a study’s details.<sup>8</sup> Recommendation 1 is supported by eight studies, Recommendation 2 by 10 studies, Recommendation 3 by 12 studies, and Recommendation 4 by six studies. The number of student participants in the studies ranged from 60 to 13,555. Eleven of the studies took place at 4-year institutions, eight took place at 2-year institutions, and two took place at both 2- and 4-year institutions. The majority of these studies were conducted at broad-access 4-year

institutions and community colleges. However, the panel believes the recommendations are also relevant for other institutions because all institutions serve students who need—and would benefit from—an advisor who can provide personalized, intentional advising and connect them to other academic and non-academic supports to maximize the likelihood that they achieve their postsecondary goals.

Though the studies included in this practice guide meet WWC standards and informed the evidence-based recommendations in this practice guide, it is important for readers to know that the authors do not endorse any interventions or programs featured in the studies.

**Table 2. Overview of Studies Providing Evidence to this Practice Guide**

Intervention	Study	# of Students	Institution Type	Recommendation			
				1	2	3	4
Adelante Scholarship Program	Patel & Valenzuela (2013)	1,028	2-year	•	•		•
Accelerated Study in Associate Programs (ASAP) at CUNY	Scrivener et al. (2015)	896	2-year	•	•		•
Accelerated Study in Associate Programs (ASAP) in Ohio	Miller et al. (2020)	1,501	2-year	•	•		•
CUNY Start	Scrivener et al. (2018)	3,835	2-year	•			
Enhanced Integrated Planning and Advising for Student Success (iPASS)	Mayer et al. (2019)	8,011	2-year 4-year		•	•	
Future Connect	Hodara et al. (2017)	1,163	2-year	•	•		
InsideTrack	Bettinger & Baker (2014)	13,555	2-year 4-year		•	•	
Key Communities	Nosaka & Novak (2014)	3,982	4-year	•	•	•	
Mentoring Program (faculty)	Campbell & Campbell (2007)	678	4-year				•
Mentoring Program (peer)	Servies (1999)	60	4-year				•
Mentoring Program (peer)	Dennehy & Dasgupta (2017)	150	4-year				•
Mentoring Program for African American Students (peer)	Thomas (2005)	80	4-year				•
Mentoring Program (peer)	Kim et al. (2013)	76	4-year				•
Mentoring & Coaching	Lavallais (2017)	100	4-year				•
Meyerhoff Scholars Program	Maton et al. (2000)	155	4-year	•	•	•	
Online Goal-Setting and Coaching	Oreopoulos & Petronijevic (2018) <sup>9</sup>	2,990	4-year				•

Intervention	Study	# of Students	Institution Type	Recommendation			
				1	2	3	4
Opening Doors	Brock & Richburg-Hayes (2006)	1,019	2-year				•
Opening Doors	Scrivener & Weiss (2009)	2,139	2-year		•		•
Student Support Services (SSS)	Sundy (2017)	140	2-year	•			
Summer Bridge Program	Medina (2016)	7,770	4-year			•	
Vision Inspired Scholarship through Academic Achievement (VISTA)	Binder et al. (2015)	1,081	4-year		•		•

## Overarching Themes

Each recommendation focuses on a particular aspect of designing and delivering advising to postsecondary students. Though these evidence-based recommendations are the focus of this practice guide, we highlight four overarching themes that cut across multiple of its recommendations. These themes, which are based on the panelists' judgment and experience, could provide general guidance and context for readers to consider as they engage with the recommendations.

- **Institutions must be intentional about the purpose and goals of advising, and recognize that achieving these goals can require institutions to change some of their systems and practices.** Institutions could ask, "What are the student-focused outcomes we are trying to achieve through advising?" The answer to this question must resonate with an institution's priorities and academic mission as well as with the range of challenges faced by the student population being served.

Adopting or adapting new approaches to postsecondary student advising can be both time and resource intensive. Whether institutions are just starting to revise their advising approach, are gradually enhancing their advising strategies, or recently overhauled their entire approach to advising, there is always room for improvement.

Intentionally designing advising programs to be comprehensive and integrated could require investment by the institution. The expert panel believes it is important that institutions make and sustain a commitment to holistic student support that meets the varied needs of their students from enrollment to graduation, and that the institution continually search for new ways to purposefully integrate advising services into students' college experience.

In some institutions, rising resource constraints could make it hard to enact all of the recommendations in this guide. These institutions might need to make strategic finance choices or re-assess funding priorities in order to fully implement the needed student supports. They also might assess whether there are structural changes that could be made to better deploy the staff who are currently available on campus in ways that could provide all students with the level of advising that they need to be successful. This guide provides advice on how to get the most out of the resources available.

- **Advisors' roles can be expanded beyond supporting student registration.** Advisors should be seen as responsible for more than simply helping large numbers of students register for courses. Instead, they need to develop relationships with students, in order to help students progress and grow throughout their college journey. Then if

advisors are expected to develop sustained, in-depth relationships with individual students, institutions might need to consider changing their advising model by, for example, reducing or shifting advisors' caseloads.

- **Given the diversity of student characteristics and needs, there is no one-size-fits-all advising model.** All students, regardless of background, are likely to face academic or non-academic challenges—or both—while in college. Institutions must be responsive and adaptable. They can be proactive in their efforts to better serve students by systematically addressing three questions: (1) *What* do our students need? (2) *When* do they need it? and (3) *How* will we deliver those supports to students?

Knowing institutions have finite resources, the expert panel recognizes institutions must also account for their own context when they consider which students or groups of students need added supports or services to reach their potential. They include students who are enrolled in developmental education courses, who are enrolled in majors that do not have high completion rates, who are first-generation college students, or who are historically underserved. It is important for institutions to keep questions of equity in mind as they identify when it is appropriate to offer all students a particular advising support, as opposed to only a particular group of students.

- **Technology is best used to facilitate and enhance advising, not to replace advisors.** Technology has and continues to play a role in advising, but technology is not a silver bullet. Instead, technology can be used to improve advising by making it more efficient to receive, share, and act upon information about student progress. An institution's initial investment in technology could pay off when advisors are able to use real-time data and tools to identify student needs and connect them to academic

and non-academic supports that promote their progress and success in college. These tools could be especially relevant with the increases of remote teaching and learning.

## How to Use This Practice Guide

For each of its four recommendations, this guide includes the following:

- **The recommendation:** Details about the recommended practice, example advising strategies and practices, the recommendation's level of evidence, and a description of how the recommended practice supports student outcomes. **Appendix C** contains a detailed rationale for the level-of-evidence category assigned to each recommendation (*minimal*, *moderate*, or *strong*) and information on the individual studies that support it. Each recommendation also includes one or more sidebar "**Highlights From the Field**" that provide implementation details from one of the supporting studies.<sup>10</sup>
- **"How to Carry Out the Recommendation" section:** Guidance on how to implement the recommended practice. This guidance is informed by the studies that support the recommendation as well as by the expert panel's expertise and knowledge of resources and strategies available to help implement the recommendation.<sup>11</sup> Though multiple steps to carrying out the recommendation are offered, not every step will be appropriate to every institution, nor is every step required to implement a recommendation successfully.
- **"Potential Obstacles and the Panel's Advice" section:** Advice from the expert panel about design and implementation challenges and how to overcome them.
- **Tools and Resources:** Examples related to the guidance for how to carry out the recommendation are provided throughout in figures.

The expert panel intends for the recommendations in this guide to be treated as a coherent set of evidence-based advice that postsecondary institutions can consider when planning and implementing student advising activities. Some interventions discussed in this guide continue to be implemented but others may have been discontinued. Because the guide is about practices and not brand-name interventions, studies of interventions implemented in the past may still be valid and useful to inform practices implemented today. Users of this guide are encouraged to apply the advice provided here in ways that fit best into the varied contexts in which they are delivering

advising to postsecondary students. For example, institutions will need to consider resource constraints as they think about which advising strategies to adopt and the capacity of their staff to deliver those strategies in the desired dosage and for the desired duration. Depending on their unique institutional context, individual users of this guide might decide to prioritize some of the panel's recommendations over others. Though this guide does not provide step-by-step instructions for implementation, readers will find resources mentioned throughout providing more information and guidance about how to apply a particular practice.

## Recommendation 1: Intentionally design and deliver comprehensive, integrated advising that incorporates academic and non-academic supports to empower students to reach their educational goals.

### Introduction

Advising is not always viewed as a mission-central function of postsecondary institutions. For advising to be most effective in helping students successfully advance in their educational pathways, it should be intentionally integrated within a holistic student support structure that offers supports to address both academic and non-academic barriers that students face.<sup>12</sup> Comprehensive, integrated advising refers to advising that is intentionally designed to connect students with a broad range of relevant academic and non-academic supports. Through the relationships they build, advisors play a key role in understanding the needs of individual students. With that understanding, advisors can help connect students to appropriate supports so they are better able to navigate complicated academic, financial, social, and emotional challenges and reach their educational goals.

Comprehensive academic and non-academic student supports included in the studies for this recommendation could be in the form of advising, counseling, tutoring and instructional support, peer and faculty mentoring, financial advising and support, and personal and career coaching, among others.<sup>13</sup> Comprehensive supports are often provided by a broad range of offices, advisors, student support staff, and faculty across campus.

To facilitate collaboration, it is important to clearly articulate the roles and responsibilities of the offices and staff delivering each student support.<sup>14</sup> It is equally important to ensure students are aware of the supports available to them, and that they know how to access the supports. Institutions should monitor students'

engagement with available academic and non-academic supports and consider ways to improve supports or make them more available and appealing to students, if needed.<sup>15</sup>

WWC staff and the expert panel assigned Recommendation 1 a *moderate* level of evidence, based on eight studies of comprehensive, integrated advising interventions implemented with postsecondary students in the United States. Four of the studies<sup>16</sup> meet WWC group design standards without reservations, and the other four studies<sup>17</sup> meet WWC group design standards with reservations. The interventions demonstrated statistically significant and positive average effects on progressing in college, academic achievement, and postsecondary degree attainment (see **Table 3**). Evidence from the eight studies provides a direct test of the recommendation, as the interventions deliver advising that is part of or connected to a comprehensive support structure in four different ways:

- Offering academic supports, such as tutoring, developmental or supplemental education, college success courses, or academic workshops (eight studies);
- Extending financial supports for tuition, such as scholarships, tuition waivers, or financial aid (five studies);
- Providing other financial supports, such as transportation assistance, emergency funds, or free textbooks (two studies); and
- Hosting community-building activities, such as social events and community service projects (three studies).

**Table 3. Results of Meta-analysis for Recommendation 1**

Outcome Domain	Average Effect of Comprehensive and Integrated Advising		
	Statistically significant and positive	Indeterminate	Statistically significant and negative
Progressing in college	●		
Academic achievement	●		
Postsecondary degree attainment	●		

Note: No studies that meet WWC standards and are relevant to this recommendation included findings in either the credential attainment or post-graduation outcomes domains.

The panel has a high degree of confidence in the research suggesting that comprehensive and integrated advising is an effective practice. Recommendation 1 was not assigned a *strong* level of evidence because effects are predominantly derived from studies that meet WWC group design standards with reservations. See **Appendix C** for a detailed rationale for the level of evidence assignment for Recommendation 1, including descriptions of the intervention features and findings from each study informing this recommendation.

### How to Carry Out the Recommendation

This section describes strategies, examples, and tools that can support the intentional design and delivery of comprehensive, integrated advising at postsecondary institutions. All figures and mentions of specific colleges or interventions in Recommendation 1 are offered as examples only and should not be read as endorsements of specific products or approaches.

#### 1. Situate advising as a core function in alignment with the mission and goals of the institution.

The panel recommends that advising be situated as a core function of the institution. Advising should aim to improve students’

connectedness with the college community, develop self-directed learners who engage in their learning process, and connect students with the supports they need to overcome barriers to persistence and degree completion.<sup>18</sup> One way of achieving this is by ensuring that advisors and other student support staff have shared student-focused goals that align with the mission of the college. This entails that the goal of advising reaches beyond helping students register for courses, and that advising is seen as a function that supports student learning.

For advising to truly be a core function of the college, it needs to be integrated within a broader structure of student supports. Relatedly, advising leadership should continually coordinate with other offices and staff that provide student supports throughout the design and implementation of student support programs and initiatives. The panel suggests advising leadership should participate in planning committees, student and academic affairs meetings, and other groups that make decisions on the college’s mission and goals, staffing, and budgetary priorities.

The Ohio Accelerated Study in Associate Programs (ASAP) Replication Demonstration offers an example of facilitating collaboration across offices and staff that provide student

## Recommendation 1

supports through the creation of planning committees. The planning committees included administrators and staff members from the colleges' academic affairs and student services departments, and they played an important role in designing and launching programs on each campus. The planning committees and other staff members identified match funding, identified or hired staff, secured office space, and worked to put each program component into operation.<sup>19</sup>

Tools and resources, such as the National Academic Advising Association (NACADA)'s Factors to Consider When (Re)Structuring Academic Advising (**Figure 1.1**), can help institutions take stock of their current advising practices as they work to integrate advising

into the broader system of supports available to students. **Figure 1.1** describes factors to consider when restructuring academic advising that will enable the institution to better understand the supports provided—from current status and need for advising services to how they will be delivered, the role of the advisor, and how to fund any new approaches to advising. Administrators, advisors, and other student support staff can use the list of factors—or a select set of these—to structure their conversation during the planning stage of redesigning advising at their college. Further, these tools can ensure that advisors are well positioned to connect students to the supports they need.<sup>20</sup>



**Figure 1.1. Factors to consider when (re)structuring academic advising**

1. **Status and Need.** What is the current status of academic advising on your campus? What student (and institutional) needs are met by the current system? What needs are not being met? How do you know? Start with the **NACADA Core Competencies**, **NACADA Core Values**, the **Conditions of Excellence in Academic Advising** and the **CAS Standards for Academic Advising**.
2. **Mission, Vision, and Philosophy of Academic Advising.** How does the institution articulate the role and importance of academic advising? Is there a formal and written **advising philosophy** easily accessible by all constituents? Is there an advising **mission statement**? Is there a **vision statement** to serve as a guide to the future of advising? Are the academic leaders and decision-makers committed to long-term support through strategic planning?
3. **Equity, Inclusion, and Diversity.** How do you facilitate “individual and institutional conversations that promote understanding, respect, and honor diverse perspectives, ideas, and identities” (NACADA, 2021)?
4. **Learning.** What does the institution want to accomplish as a result of the advising program? What should students be able to **know, do, and value** through the academic advising experience? What strategies (pedagogies, curricula, workshops, assessments, etc.) need to be implemented to meet these goals, objectives, and intended outcomes?
5. **Is the advising system intentionally structured? Who will advise and who will oversee and lead advising strategies, goals, and objectives?** Will you utilize professional (primary role) advisors? Peer advisors? Faculty advisors? If you choose faculty, should all faculty advise, or should advisors be selected based on desired characteristics and/or willingness to serve?
6. **How will advising be delivered?** What **advising models** will be used to structure the delivery of advising? Will students be advised in person by a faculty member from their office? Will there be an Advising Center? Where can students find support if their assigned advisors are not available? Will students need an appointment for advising? Will students have access to both **synchronous and asynchronous** modes of delivery for advising-related interactions? Will **group advising** be utilized?
7. **Is advising supported through integrated technologies?** What are the information needs for students and advisors? How can you ensure that both students and advisors have the information they need when they need it while maintaining confidentiality? Is the technology appropriate and accessible to support their learning? Is there training and support for both advisors and advisees to support the technology being utilized?
8. **Advisor/Advisee Responsibilities.** Are there stated **expectations for advisors/advisees**? Is there an advising syllabus that is explicitly provided to students? Is there on-going professional development for advisors? Is there an updated academic advisor handbook or does one need to be developed or revised?
9. **Student Participation.** Should all students be required to see an advisor? If not, what criteria will you use to determine who must be advised? How ‘**intrusive**’ or ‘**proactive**’ should your advising program be? What messages are automatically sent to students and how effective are they in encouraging a response?
10. **Advisor Caseload.** What is a reasonable advisor to student ratio for your institution’s advising situation that is based on **explicit expectations and responsibilities for the role**?
11. **Assignment of students.** What criteria will be employed to assign students to advisors? Will students be assigned alphabetically? based on major? based on their year in school?
12. **Developing Advisors’ Skills and Knowledge.** What are the training and professional developmental needs of advisors and how might these best be addressed in a systematic and scaffolded program that is grounded in related higher education literature?
13. **Assessment and Evaluation.** How will you **assess and evaluate** the effectiveness of your advising program? What are your intended program outcomes? What do you expect students to learn, do, and/or value because they were advised? How will you know if your efforts are successful? What tools will you use, and what evidence is appropriate? How often will you conduct an assessment cycle?
14. **Recognition/rewards.** How can you provide a tangible, meaningful, and realistic reward system to advisors (both primary-role advisors and faculty advisors)? Do you have a career ladder in place to encourage continuity and stability in the advising core, and to acknowledge their role as professional educators?
15. **Integration.** What are the relationships between academic advising and campus resources? Do advisors know when, and how, to refer students to these resources?
16. **Funding.** What are the fiscal requirements of the advising program? Are monies available to adequately meet these needs?
17. **Implementation.** What must be done, and who should be involved, in the implementation of the desired academic advising program?

Source: Miller et al. (2021).

### 2. Determine what supports students need and whether there are gaps and overlaps in the supports currently available.

A useful starting point for designing and delivering comprehensive, integrated advising is to develop an understanding of the types of supports students need. Institutions could consider what academic, financial, social, and emotional challenges students might

face during their college experience. The template in **Figure 1.2** includes questions about financial circumstances and background characteristics that can help an advising team begin evaluating the extent of student need on campus.<sup>21</sup> Initial assessments such as this one can help institutions identify and anticipate the student needs that their comprehensive supports must address. The panel suggests

**Figure 1.2. Sample template for assessing student needs**

Student Needs Assessment						
Financial Circumstances	0–20%	21–40%	41–60%	61–80%	81–100%	Don't Know
1. What percentage of students work more than 20 hours a week?						
2. What percentage of working students experience regular changes in their shifts or number of hours?						
3. What percentage of students receive or are eligible for Pell Grants?						
4. Of those who receive Pell Grants, what percentage live below the poverty threshold for a family of four?						
5. What percentage of students say they live paycheck to paycheck?						
6. What percentage of students receive income-based public assistance?						
7. What percentage of students feel they are carrying too much debt?						
8. What percentage of students struggle to feed themselves and/or their families?						
9. What percentage of students have unstable living situations?						
Background Characteristics	0–20%	21–40%	41–60%	61–80%	81–100%	Don't Know
1. What percentage of students have children or care for family or friends?						
2. What percentage of students have a disability or other health concern for which they may want assistance?						
3. What percentage of your students come from households where English is not their first language?						
4. What percentage of students come from households where no one has a college degree?						
5. What percentage of students are being flagged for additional services?						
6. What percentage of students come to your campus knowing what career they are seeking?						

Source: Achieving the Dream (2018).

that the assessment can be tailored to and completed for different student groups, as the identified needs could differ across these.

See **Recommendation 2** for additional information about how to determine the characteristics and needs of the students.

Beyond a student needs assessment, the panel also recommends that institutions identify any gaps and overlaps in the supports currently available to students as they progress through college—from initial orientation through degree completion. One strategy that can be used for this purpose is process mapping, which involves both staff and students at an institution documenting the processes and requirements students must complete as they progress toward graduation. After mapping the intended processes and requirements, both staff and students can share their experiences regarding successes and challenges students encounter when navigating the processes, as well as potential gaps and overlaps in the supports that are currently available to assist students.

To earn a credential, students need to successfully navigate a wide range of university processes, from selecting a major to filing an application for graduation. The panel recommends that institutions identify the most significant processes students interact with during their journey, including processes that students could encounter when they are “off-track” (e.g., appealing a course grade). Next, institutions should detail how students experience each process and then identify specific supports that the institution might offer to increase the likelihood that students navigate processes successfully.

Providing students with a broad range of supports and establishing connections across them requires more than just referrals, policies, and procedures. Moreover, it is important to have a partnership and structure in place when sending a student to another

department for support. There should be communication between departments, as a team approach to advising and support services can help ensure that students do not feel as though they are just another number standing on line in a different office. The panel believes strongly that advisors should provide a “warm handoff” by introducing the student to their colleague in another office. To do that requires student support staff who know how other offices that provide support operate (see also **Recommendation 2** on sustained, personalized advisor-student relationships).

### **3. Design comprehensive advising to meet the individual needs of a diverse student population.**

To support diverse student populations and the varying needs of individual students, colleges should provide a broad range of academic and non-academic supports that are deliberately selected and connected to meet individual students’ needs.<sup>22</sup> The panel recommends that available student supports be delivered in a way that is intentional and guided by an advisor who has a sustained, personalized relationship with the student (see **Recommendation 2**). The role of the advisor is to understand the needs of individual students and connect them with relevant supports, where these supports might be provided either directly by the advisor or by other departments on campus.

As part of the Opening Doors Demonstration at Owens Community College and Lorain County Community College, students had access to designated counselors and a broad range of student support staff. Needs addressed by these staff included course scheduling, registration, financial aid and other financial issues, tutoring, work-based learning efforts, juggling school and work, career aspirations, and personal issues. One of the part-time counselors at Lorain had expertise as a career development specialist, and she met with many of the participating students to help

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them explore career options and align their academic efforts with their employment goals. As part of their commitment to provide comprehensive supports, both colleges designated staff in the financial aid office to serve as special liaisons for Opening Doors students and provided other student supports, such as one-on-one tutoring.<sup>23</sup>

The expert panel believes advising should meet students where they are by considering their needs and challenges and by being available to meet when and where students are.<sup>24</sup> Yet, the panel also recognizes that meeting the diverse needs of students could require a broad range of student supports. For example, the Adelante Scholarship Program, which targets low-income Hispanic male students, provided a wide range of support services to help students overcome academic, financial, and personal barriers to postsecondary success. Some supports were selected to provide students important academic tools, such as

study skills and time management, whereas others were meant to provide students with resources and knowledge to help them navigate and succeed in a college environment. Additional supports were added to foster a sense of community and positive engagement between Adelante students and the college, the staff, and their peers.<sup>25</sup>

The Accelerating Opportunity program, which provides Adult Basic Education and career and technical training combined with support services to underprepared and nontraditional students, illustrates an approach to comprehensive student supports (**Figure 1.3**). The figure provides a resource that administrators and advisors can use when thinking about the different types of student support for this particular student population, including their general purpose, and illustrative examples of the activities that could be involved under each type of support.<sup>26</sup>

### Highlights from the Field



#### Intentionally Designing and Delivering Comprehensive, Integrated Advising: Future Connect

Future Connect is a long-term financial and advising support program that addresses multiple barriers to college access and achievement. The Future Connect scholarship is intended to cover the cost of tuition after applying other federal and state financial aid for up to three years at Portland Community College. The program also provides other financial resources, such as bus tickets and student access to an emergency fund (used on a case-by-case basis), as well as housing support for students in foster care.

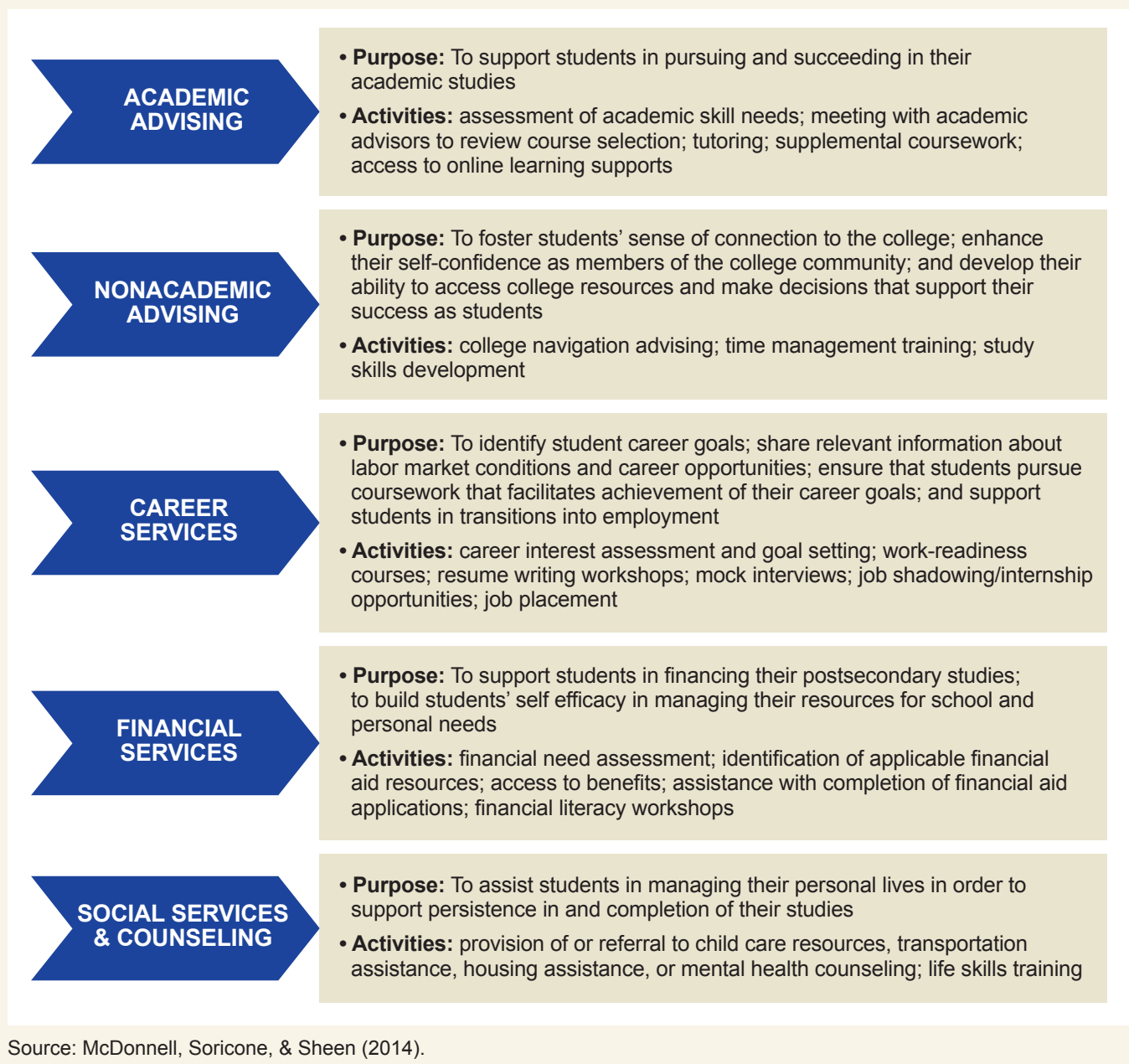
Future Connect developed a holistic advising model that provides relationship-based, student-centered advising, combined with a broad array of academic and non-academic supports to students. Future Connect begins with early outreach in high school to recruit students and build trust with students during the transition from high school to college. Each College Success Coach, who functions as a holistic advisor, works with a caseload of 70 to 120 students to help them reach their postsecondary and career goals.

Coaches provide individualized advising and support, primarily in regular one-on-one meetings with students. Future Connect students enroll in two free college and career success courses taught by their coach (College Survival & Success; and Today's Careers). Students also have access to optional leadership opportunities including a leadership course or internships. Students receive transfer support, including opportunities to apply for scholarships to attend Lewis & Clark College, Pacific University, Portland State University, among others.

The College Success Coaches provide support early on that may be key to students' early persistence. Specifically, they communicate the message that college is possible, and they provide early case management, social and emotional support, and assistance with financial aid. Coaches also build students' trust and establish a personal relationship by being dependable, reliable, and caring; honoring confidentiality; sharing personal experiences; normalizing students' experiences; and communicating clear expectations.

*(Hodara et al., 2017)*

Figure 1.3. Examples of comprehensive supports for underprepared and nontraditional students



**4. Clearly define the roles and responsibilities of the different staff delivering student supports and ensure close collaboration among those staff.**

Providing comprehensive advising involves a broad range of staff and faculty across campus.<sup>27</sup> These staff could include advisors, coaches, counselors, peer and faculty mentors, tutors, and other student support

staff.<sup>28</sup> Given the potentially complex system of supports available to students, it is important to clearly articulate the roles and responsibilities of the staff and faculty delivering each academic and non-academic student support.<sup>29</sup> This will ensure that supports are provided efficiently and effectively, and that there is a college-wide coordination of who is responsible for

delivering each support. As noted earlier, process mapping is one strategy that can be used to help institutions identify gaps and overlaps in the supports available to assist students in progressing toward graduation. As part of process mapping, staff can explicitly document the individual(s) responsible for supporting students along each step of their college journey. In doing so, the panel recommends staff should think intentionally about the best way for multiple individuals to support students in a coordinated, non-overwhelming way. Regardless of whether they create a process map of the student experience, institutions might consider the following questions as they consider student support roles and responsibilities:

### **What supports are needed, and which are currently available?**

- What does “high-quality student support” look like in each varied support role on campus?
- What supports do we currently offer? Why, when, and in what way are these supports offered?
- Where are there gaps in supports?

### **What resources are available to address gaps in supports?**

- Are we using all people on the campus efficiently to meet the needs of students at various times?
- Which existing staff could be in a position to fill identified gaps?
- Which gaps cannot be filled by existing resources, but remain a priority?
- What kind of staff are needed to fill those priority gaps?
- How will these new staffing needs be funded?

- How can the process of engaging with different functions or support providers be streamlined for students?
- How will we facilitate cross-role communication and coordination?
- How can we promote familiarity and trust amongst staff?
- How will we train and support staff to meet the expectations of their roles?
- How will students know whom to go to and when? How will the advising structure be communicated to students?
- Who serves the role of primary contact for a student who is facing academic challenges? What about for a student facing personal issues or challenges?
- How will we evaluate the effectiveness or success of student supports?

Members of a college’s leadership team are well positioned to take responsibility for establishing close collaboration and coordination between academic and non-academic student support services.<sup>30</sup> For example, within the CUNY ASAP program, the CUNY Office of Academic Affairs ASAP leadership team works closely with participating colleges in their governance and delivery of the program and to assist colleges in their program’s operational and budgetary planning. The CUNY ASAP Academic Affairs team also plays a key role in promoting increased collaboration and resource sharing within and across institutions; for example, by working closely with the ASAP evaluation team to develop streamlined systems for data collecting and reporting across implementation sites.<sup>31</sup>

Collaboration and coordination can also be overseen by a program coordinator who conducts intentional outreach across

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offices and departments. For example, the Adelante program coordinator worked closely with staff in financial aid, student accounts, student services, the learning centers, and various academic departments on campus to develop systems and processes that facilitated the implementation of the program. These included systems and processes for disbursing awards, tracking service utilization, and communicating with students. The program also required effective coordination among the learning centers, Adelante advisors, and counselors teaching academic workshops.<sup>32</sup>

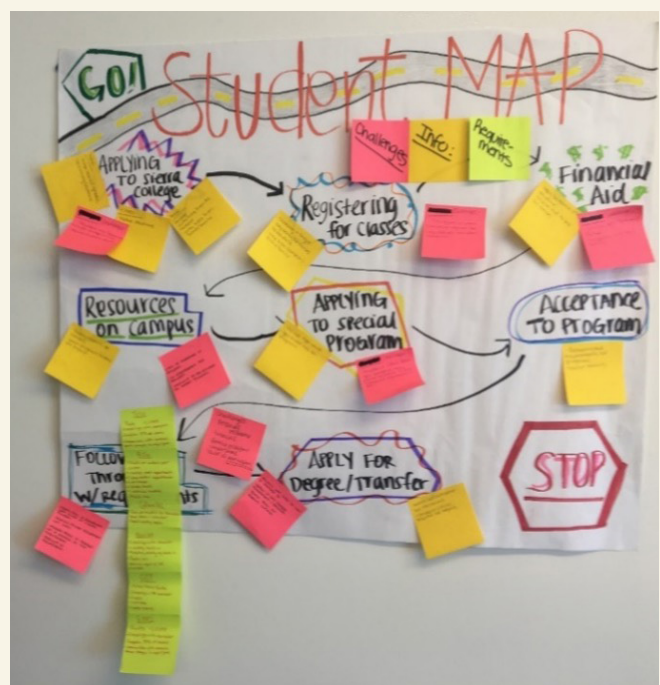
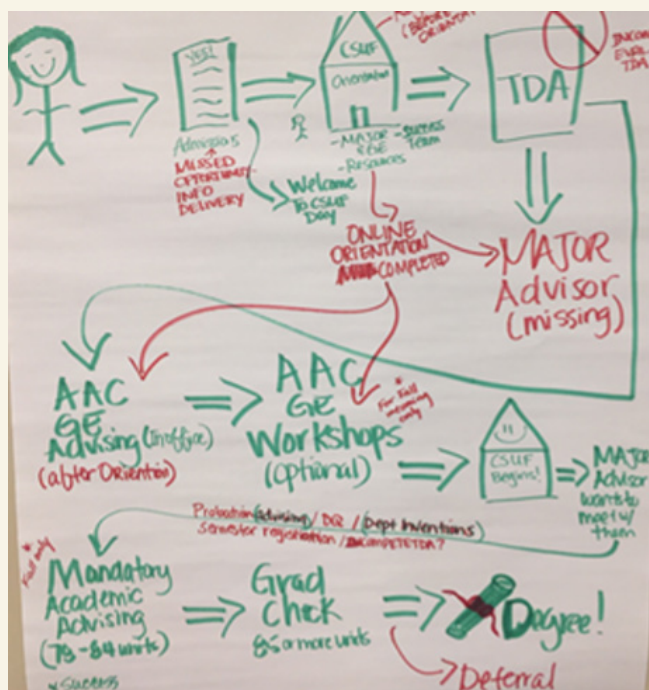
### 5. Clearly communicate the full range of student supports available to students.

The panel believes information about who the student's advisor is, the advisor's role, and information on available supports needs to be communicated clearly to students—from first orientation to the final steps leading up to graduation. Institutions that have developed a process map of the student experience from

college enrollment to graduation could use the map as a basis for developing a visual that clearly lays out processes and requirements that students must complete, as well as how to access available supports along the way. The photos in **Figure 1.4** are sample pathway maps created by college advisors and staff members who were trying to understand students' experiences navigating campus requirements and supports.

The panel suggests that new student orientation programs could afford a natural opportunity to begin addressing this recommendation. As part of its Key Communities program, which involves students in a learning community and peer mentoring to foster a sense of community, academics, leadership, diversity, and service, Colorado State University is intentional in making sure new students know about the support services available to them. Students begin with a special 2-day orientation prior to the start of the fall semester. The goal of the orientation as a whole is to foster a

Figure 1.4. Sample student pathway maps



Source: Cal State Fullerton as a part of the CSU Student Success Network (left); Sierra College (right).

sense of community; orient students to the expectations of the program; and acquaint students with peers, faculty, and student support staff. During the orientation, support staff provide information about how to access supports available on campus.<sup>33</sup>

Beginning by getting to know students in the orientation activities, advisors then can play a key role in helping students navigate and connect with the supports they need throughout their college career.<sup>34</sup> In the Future Connect program, College Success Coaches, who function as holistic advisors, use a variety of innovative strategies to ensure students are aware of resources available on campus. These strategies include leading campus tours, holding social events on campus, and building a resource scavenger hunt into the College Survival & Success curriculum so that students “are actually stepping into all those resources” through that process.<sup>35</sup>

### 6. Continuously monitor student engagement with academic and non-academic supports.

A central component of comprehensive, integrated advising is opportunities for students to engage with advisors and access relevant supports, as needed, throughout their time in college.<sup>36</sup> Ongoing monitoring and evaluation of students’ engagement and experiences with advising will help the institution to continuously develop and improve its student supports.<sup>37</sup> Guiding questions for evaluating and monitoring students’ use of available supports include:

- To what extent, if at all, are students using student support services?
- Are there differences in usage across student groups?
- What is the student’s experience with the different student support services offered?

- Are the supports easy to access and navigate? What, if any, challenges are students having as they navigate available supports?
- Are additional staff or resources needed?

Technology can be useful for monitoring how and the extent to which students are accessing student support services. CUNY ASAP, for example, created a tracking system for ASAP staff members to follow student participation in the program: contacts with advising and career services were logged in real time in the ASAP database, whereas tutoring visits and attendance in an ASAP seminar (now delivered as ASAP group advisement) were recorded weekly by college staff.<sup>38</sup> These data were tracked weekly for program management purposes and were reported to the CUNY Office of Academic Affairs each semester for evaluation purposes.<sup>39</sup>

Advisors can also use these tools to identify students requiring encouragement to participate in optional and mandatory support activities.<sup>40</sup> To ensure consistent participation in advising, staff members in the Ohio ASAP Replication Demonstration used a variety of strategies—such as calls, text messages, and posts on course management systems—to connect with students and remind them of upcoming appointments. The program directors and advisors in the program used the management information system for tracking student participation in the various program components (specifically, advising, tutoring, and career services) and completing monthly participation reports. Advisors from one college described how they routinely used the management information system to identify and follow up with students who had not fulfilled their required advising appointments.<sup>41</sup>



### Potential Obstacles and the Panel's Advice

**OBSTACLE:** *Delivering comprehensive, integrated advising could require a significant and intentional transformation of how staff perform their roles.*

**PANEL'S ADVICE:** At many institutions, advisors guide students through course selection and registration but do not have the time, resources, or mandate to provide more comprehensive support to individual students. The panel recommends that institutions carry out an advising self-study, which can identify organizational opportunities and limitations for providing comprehensive, integrated advising. Such a self-study can help them determine how existing staff can be most effectively deployed and whether they need to hire or train additional staff to support advising. There are existing tools that can guide these types of self-studies. As part of its evaluation of the intervention Enhanced Integrated Planning and Advising for Student Success (iPASS), for example, the Community College Research Center developed an institutional self-assessment rubric for assessing existing advising and student support systems at postsecondary institutions. The assessment rubric is organized around institutional structures and processes, advising and student support leadership, vision and mission of advising, advising-related resources, and staff professional development, among other aspects of advising systems.<sup>42</sup>

Recognizing the challenges that can accompany shifting away from a more typical advising model, the panel also recommends providing professional development for advisors so that they are better able to provide comprehensive advising to individual students. Training for advisors could include information on how best to develop sustained relationships with students. It also could include information on how to better function as a team with other service providers, so that advisors are better positioned to connect students with the variety of support

staff already working at the college. Training could also be provided to faculty mentors and other staff that are part of the student support structure, especially those from student affairs and academic affairs. In this way, the training can facilitate relationship building and serve to clarify roles and responsibilities.

**OBSTACLE:** *Providing comprehensive advising could require institutions to consider more creative and effective uses of current resources.*

**PANEL'S ADVICE:** The resources available at a given college can determine the availability of academic and non-academic supports. Institutions facing significant resource constraints might view investments in hiring more advisors, technology, and professional development as out of reach. Though these steps might pay off in the long run through increased student persistence and college completion, there are other options for providing comprehensive advising, even for institutions and advising departments with very limited resources. Many institutions could be able to provide more comprehensive advising by being creative about how to marshal existing resources.

For example, the panel believes institutions should find ways to share responsibilities for improved advising across a wider range of staff members, such as identifying staff who are in less student focused roles and shifting them to take on advising responsibilities. This might be in the form of shifting responsibilities of non-professional staff toward roles and responsibilities that support advising, such as virtual front desks, initial triage of student needs, and helping prepare students for advising sessions. By reassigning some of the more administrative tasks to other staff, advisors can be freed up to provide more comprehensive advising that is tailored to individual student needs.

Because students are not limited to developing supportive relationships with just their advisor, institutions might want to build in intentional opportunities for advisors to collaborate with

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other staff assigned to support students. Many institutions already rely heavily on advisors directly connecting students to other campus or community resources.<sup>43</sup> The efficiency and effectiveness of these referrals can be enhanced when advisors and other support staff have a strong working knowledge of the available supports and they work in an integrated manner with the staff who provide those supports.

If feasible, institutions might create “student success teams” that consist of multiple staff people assigned to support students through a case management-like approach. This structured team approach might incorporate staff from different departments on campus, and it has the potential to individualize supports in ways that help students feel more connected throughout their college experience. Saint Leo University, for example, uses a Student Success case manager/coach approach, where a case manager connects students with services “by working closely with all university divisions and departments to identify and resolve systematic barriers that could affect retention and persistence.”<sup>44</sup> At Cosumnes River College, Student Success Teams,

comprising counselors, classroom faculty, peer mentors, and a dean, work together to provide student-centered holistic support.<sup>45</sup>

The panel believes group advising can be a cost-effective way of covering general course selection, long-term course planning, and registration topics for groups of students. For example, at Saddleback College, advisors offered group counseling workshops four times a week. The 2-hour workshops, offered in addition to one-on-one advising, “were structured to ensure that students understood why and how to create an academic plan, could work on and complete their academic plan during the workshop, had access to counselors, and could leave the workshop as soon as their academic plan was reviewed and approved by the counselor.”<sup>46</sup> By offering support for basic academic planning in a group format, advisors at Saddleback were able to focus their advising sessions with individual students on more complex academic and non-academic challenges encountered by some of the students. Considerations for designing and delivering group advising are provided in **Figure 1.5**.

**Figure 1.5. Considerations for designing and delivering group advising**

- **Decide if group advising is right for you.** Some group advising will require more of a facilitator role, while other types will need more of an instructional approach. It is essential to decide if your advising style fits with group advising. For a group advising event to be successful, advisors need to give an honest assessment of their own personality to see if it fits with group advising (Ryan, 2010).
- **Decide if group or individual advising is appropriate for student(s).** Advisors need to think about whether an individual or group advising approach would be more appropriate for their specific students. For example, an individual advising approach would be more appropriate when an advisor needs to discuss confidential information with the student. On the other hand, a group advising approach allows students to interact with each other to understand themselves better or listen to a presentation in a group where other students can support the understanding of the material through questions and comments.
- **Plan appropriately.** Group advising requires planning in the following ways: locate a space that is functional for group advising; inform students of the session using multiple means of communication, such as e-mail, social media, and flyers; prepare engaging materials and handouts that students can take with them to refer to later (e.g., worksheets, curriculum guides, lists of important dates, and information on campus resources); and develop a clear agenda for the meeting (King, 2000).
- **Another item in planning for group advising is cost considerations.** For example, advisors or advising administrators can do a cost-benefit analysis to determine the strengths and weaknesses of individual versus group advising sessions. A cost-saving analysis helps to determine the best approach to benefit the students while preserving savings for the university. Research showed in some cases group advising responds creatively and intentionally to the issue of budgetary constraints on college campuses (King, 2000; Ryan, 2010).
- **Be aware of strategies for successful group facilitation.** Icebreakers, introductions, and problem-based learning experiences are essential to establishing a climate in which students feel comfortable. Equally important, at the beginning of the group, it is helpful to discuss the broader purpose of advising as a means of assisting students in establishing appropriate and meaningful educational plans.
- **Be familiar with campus resources to make appropriate referrals when necessary.** Students attending group advising sessions may have some specific needs beyond the scope of the session. In these instances, it is essential that an advisor be well-connected on campus and understand campus resources to make appropriate referrals when necessary.
- **Evaluate student experiences with group advising.** Assessment and evaluation certify that students are getting the most out of the sessions. In writing assessment questions, advisors need to create questions that evaluate the student's experience in the group as well as assess the attainment of the learning outcomes for the group. If the questions for the assessment are written well, the evaluation results will be more relevant to advisors.

Source: Johns & Wilson (2018).

The panel also recommends that all institutions—whether facing resource constraints or not—should be strategic about where to focus their advising resources. Institutions might conserve resources by providing more intensive supports

to students who need them and can benefit the most. See **Recommendation 2** and **Figure 2.6** for additional information about identifying students who could be in need of more intensive supports.

**OBSTACLE:** *Accessing comprehensive student supports can be overwhelming for students.*

**PANEL'S ADVICE:** The broad range of support services can be overwhelming to some students, leaving them unsure how to access the student supports they need. The panel recommends that the purpose and roles of advisors, coaches, mentors, and other student support staff be clearly articulated to students. The panel believes that advisors play a key role in serving as the primary point persons students can go to when in doubt about how to access student supports. To the extent possible, supports should be communicated to students just in time. For example, providing students with information on *what to do if you fail a midterm* is far more effective if provided if and when the student fails a midterm than at a new student orientation.

To better communicate the role of the advisor and the various supports available, institutions might consider integrating advising into the college onboarding and first-year experiences. The panel also recommends, where feasible, introducing students to advising and student supports as part of academic activities, such as part of student success courses.<sup>47</sup> At Chaffey College, for example, the student success courses were taught by advisors and combined with instructional support centers.<sup>48</sup>

## Recommendation 2: Transform advising to focus on the development of sustained, personalized relationships with individual students throughout their college career.

### Introduction

Advising should be tailored to the individual academic, personal, professional, and career needs and goals of the student.<sup>49</sup> The specific needs of each student often change as they progress through college. Therefore, the expert panel recommends an advising model that focuses on the development of sustained, personalized relationships with individual students throughout their college careers.<sup>50</sup> Providing *sustained, strategic, intrusive, personalized, and proactive* (SSIPP) advising supports that address academic and non-academic barriers to college achievement could possibly lead to improvements in students' sense of belonging, academic achievement, college progression, and degree completion.<sup>51</sup>

The panel believes an advising model that promotes sustained relationships between students and advisors enables advisors to build trust and a personal relationship with students, allowing advisors to better address the various academic and non-academic barriers to success each student faces. This might involve adopting an Appreciative Advising model, making sure advisors have the time to build relationships with individual students and understand their academic, social, and interpersonal needs, as well as making advising more accessible and visible to students throughout their college career.

The importance of the advisor-student relationship was also included as an evidence-based recommendation in the WWC practice guide *Strategies for Postsecondary Students in Developmental Education*. That guide recommends that colleges and universities “require or incentivize regular participation

in enhanced advising activities.” It states that “an important aspect of enhanced advising is a dedicated and lasting interaction between an advisor and a student. The purpose is to interact personally with the student to foster learning, encourage course completion, and decrease institutional barriers that limit or prevent student participation in the intellectual and social life of the college.”<sup>52</sup> The panel agrees that these same strategies are applicable for a wider student population.

As described in **Recommendation 1**, to be able to offer students such advising, some institutional transformation could be necessary. Institutions that use advisors to guide students in selecting courses but not to provide long-term, individualized academic and non-academic supports could need to transform their advising practices to better meet student needs. Transforming the culture and practice of advising can require fundamental shifts along structural, procedural, and attitudinal dimensions.<sup>53</sup> For example, institutions might need to re-examine their advising model and practices, including the role advisors play in serving students and whether they have appropriate staff and delivery mechanisms in place to effectively provide comprehensive, integrated advising.

This transformation of the culture and practice of advising could require additional resources and investments, such as professional development for advisors and smaller caseloads. The costs of transforming advising practice might be offset by the benefits of improved student outcomes, however. Institutions might consider investing in technology to help advisors provide long-term individualized support to students more efficiently.<sup>54</sup>

## Recommendation 2

WWC staff and the expert panel assigned Recommendation 2 a *strong* level of evidence, based on 10 studies of interventions that involve sustained, personalized advising relationships implemented with postsecondary students in the United States. Seven of the studies<sup>55</sup> meet WWC group design standards without reservations, and the other three studies<sup>56</sup> meet WWC group design standards with reservations. The interventions demonstrated statistically significant and positive average effects on progressing in college, academic achievement, and postsecondary degree attainment (see **Table 4**). Evidence from the 10 studies provides a direct test of the recommendation, as the interventions involve sustained, personalized advising relationships in five different ways:

- Advisors or coaches had access to data from progress monitoring or early warning systems, allowing them to proactively reach out to students in need of academic and/or non-academic supports (five studies);
- Interventions allowed for sustained relationships by pairing students with the same

advisor for the duration of their participation in a particular program (four studies);

- Interventions increased the frequency of advisor-student interactions by granting students priority access to schedule appointments with their advisor (four studies);
- Interventions intentionally designed advising to offer social and emotional support in addition to academic support (three studies); and
- Interventions featured smaller caseloads for advisors, allowing advisors to spend more time getting to know and meet with the students they were assigned to (three studies).

The panel has a high degree of confidence in the research suggesting that promoting sustained and personalized advising relationships is an effective approach. See **Appendix C** for a detailed rationale for the level of evidence assignment for Recommendation 2, including descriptions of the intervention features and findings from each study informing this recommendation.

**Table 4. Results of Meta-analysis for Recommendation 2**

Outcome Domain	Average Effect of Sustained and Personalized Advising		
	Statistically significant and positive	Indeterminate	Statistically significant and negative
Progressing in college	●		
Academic achievement	●		
Postsecondary degree attainment	●		

Note: No studies that meet WWC standards and are relevant to this recommendation included findings in either the credential attainment or post-graduation outcomes domains.

### How to Carry Out the Recommendation

This section describes strategies, examples, and tools that can support the transformation of advising to focus on the development of sustained, personalized relationships with individual students. All figures and mentions of specific colleges or interventions in Recommendation 2 are offered as examples only and should not be read as endorsements of specific products or approaches.

#### 1. Meet students where they are developmentally and recognize their individual needs.

To meet each student's unique needs, an institution's advising model should build a foundation of understanding the student population the advisors will serve, what academic and non-academic supports those students might require, and how to deliver those supports to the students who

need them. It is important for colleges to remember that individual students' needs will differ depending on their background, such as age, gender, race/ethnicity, or relevant lived experiences, as well as educational goals. As a result, advising for individual students could vary in both frequency and duration of advisor-student contacts, as well as in what topics advisor and student discuss.

If an institution anticipates that students will face a wide range of academic and non-academic barriers, a preferred model is one robust enough that the advisor can tailor support to each student. Tailored advising begins with assessing and understanding the individual barriers the student faces throughout their time in college. Comprehensive, integrated advising programs at several colleges build in opportunities for advisors to learn about non-academic aspects of a student's life, such as health, work, family, and financial obligations.<sup>57</sup>

## Highlights from the Field

### Promoting Sustained, Personalized Relationships with Individual Students: CUNY ASAP

Acknowledging the variety of barriers to academic success students may face, ASAP provides students with comprehensive advising not only on academic issues but also on social and interpersonal issues. During the course of the study, ASAP students were required to meet with their assigned adviser in person twice per month throughout each semester; advisers also sometimes communicated with students by phone, e-mail, or text message. Advising appointments were tracked, and attendance was linked to students' receipt of monthly MetroCards. ASAP students were assigned an adviser during their first semester and usually continued to see the same person throughout their college careers.

ASAP advisers serve only ASAP students. During the study, they typically held case-loads of 60 to 80 students each semester. This caseload was substantially smaller than the national median in community colleges, which the National Academic Advising Association puts at 441 students per adviser, and the average at each school where ASAP operates. At the three colleges in the study, the ratios ranged from 600 to 1,500 students per adviser. The small caseloads allowed advisers to meet with students more frequently and for longer durations.

ASAP advisers were trained to field a wide variety of topics. In addition to covering the gamut of academic topics, including getting acclimated to college, choosing classes, and picking a major, ASAP advisers helped students with soft skills, such as study habits and time management, how best to balance home, work, and school demands, and extracurricular activities and campus life. ASAP advisers kept their schedules open to students for as much time as possible during the day; at schools where ASAP included night and weekend students, ASAP advisers dedicated to night and weekend students kept hours late into the evening and for several hours on Saturdays and Sundays.

Advisers sometimes interacted directly with students' professors or financial aid officers to resolve issues. ASAP advisers reported that they took a forward-looking approach to advising, encouraging students to think early on about aligning their college experience with their career goals and planning to transfer to four-year institutions. ASAP advisers also helped with personal issues as they arose, either within the advising context or by referring students to other resources.

*(Scrivener et al., 2015)*

## 2. Design an advising model that enables individual students to have a sustained relationship with their advisor.

A holistic approach to advising, where the advisor comes to understand the challenges faced by each individual student and connects each with the supports they need, can improve students' ability to meet their academic and non-academic goals. To promote a sustained relationship, an advisor should start building a relationship with individual students early on in their college

experience, staying engaged with each until they meet their educational goals.<sup>58</sup>

The panel identified the Appreciative Advising framework, as depicted by **Figure 2.1**, as one common approach used by academic advisors to enhance the quality of their relationship, and ultimately their interactions, with students.<sup>59</sup> Appreciative Advising involves asking generative, open-ended questions that help students make the most of their educational experiences and achieve their dreams, goals, and potentials.<sup>60</sup>



Figure 2.1. The Appreciative Advising Framework



 **Disarm**

Make a positive first impression with students, to build rapport and create a safe and welcoming space.

 **Discover**

Ask generative, open-ended questions that help advisers learn about students' strengths, skills, and abilities.

 **Dream**

Inquire about students' hopes and dreams for their futures.

 **Design**

Students and advisers co-create a plan for making students' dreams a reality.

 **Deliver**

Students deliver on the plan co-created during the Design phase, and advisers are available to encourage and support their students.

 **Don't Settle**

Students and advisers set their own internal bars of expectations high.

Source: Bloom, Hutson, & He, (2008).

The Meyerhoff Scholars Program connects advisors with students during a summer bridge program, providing them an early start to developing a relationship, and expects advisors to work with the students throughout their time in the program.<sup>61</sup> Students participating in CUNY ASAP are assigned an advisor during their first semester and usually continue to see the same person throughout their college career (see the *Highlights from the Field* “Promoting Sustained, Personalized Relationships with Individual Students: CUNY ASAP”). ASAP students are required to meet with their assigned advisor in person twice per month throughout the 3-year program period. ASAP advisors also sometimes communicate with students by phone, email, or text message.<sup>62</sup>

Students in the Adelante Scholarship Program at Pima Community College, who were either incoming students or enrolled students with no more than 45 credits, are assigned to work with the same advisor all three semesters they participate in the program. The advisors help each student navigate various college systems, provide guidance on strategies for academic success, and intervene early if a student is falling behind. The purpose of this advising model is to allow students the opportunity to develop a meaningful relationship with a staff member on campus, with whom they could also feel comfortable discussing non-academic issues such as health, work, and family life.<sup>63</sup>

Small caseloads allow advisors to meet with students more frequently and for longer durations.<sup>64</sup> Students participating in the Opening Doors initiative at Lorain County Community College and Owens Community College in Ohio, for example, were offered intensive, personalized, and comprehensive supports. The advisors in this program, referred to as “counselors,” had smaller caseloads than other advisors, which allowed them to see students more frequently and

spend more time with them. The rationale for the increased contact was that it would allow the counselors to uncover and address more issues relevant to the students’ success in school.<sup>65</sup>

Similarly, small caseloads at the CUNY and Ohio ASAP programs allow for frequent advisor-student contacts and let ASAP provide students with comprehensive advising not only on academic issues but also on social and interpersonal issues. The Ohio ASAP program offers comprehensive advising from an advisor with a caseload of about 125 students.<sup>66</sup> The CUNY ASAP program student-to-advisor ratios were between 60:1 and 80:1 during the 3-year study period of a random assignment study,<sup>67</sup> enabling 95 percent of ASAP students to meet with an advisor during their first year. On average, CUNY ASAP students met with an advisor 38 times in the 3-year period, compared to the average six times a comparison group student in that study met with an advisor during that same time.<sup>68</sup>

### 3. Implement strategies that make advising visible and accessible.

To support student engagement with advising services and supports, institutions should ensure advising is both visible and accessible. Students might not be aware of the multitude of academic and non-academic supports available to them. Similarly, if services are difficult to access—whether due to staff shortages, limited hours, or inconvenient locations—students might not get the assistance they need when they need it.

To ensure advisors have opportunities to meet with students to understand their academic, social, and interpersonal needs, advisors should have flexible schedules that allow them to be available to students during some nights and weekends.<sup>69</sup> Colleges might consider adopting flexible work hour policies

## Recommendation 2

to allow staff to better align their hours with student availability and promoting remote meetings through video communication technologies such as Zoom or Skype.

To make advising supports more visible and accessible, institutions might consider integrating advising into educational activities, such as student success courses or orientations; locating the advising department centrally on campus; and conducting advising where students are located, such as within residence halls or athletic departments. The Learning Communities initiative at Kingsborough Community College, a one-semester career-focused program for second-semester students, provided advising as part of an integrative seminar intended to reinforce the interdisciplinary teaching in the courses as well as to raise awareness of career options.<sup>70</sup>

Institutions can also make advising services more visible to students through social events. The Meyerhoff Scholars program at

the University of Maryland Baltimore County, a program designed to increase the number of underrepresented minorities who pursue graduate degrees in science and engineering, hosts social and cultural events to provide advisors and students opportunities to interact outside of formal advising sessions.<sup>71</sup>

Institutions could also identify opportunities to help students realize the full value of the resources available to them throughout the college, and to encourage them to access those resources. One-on-one advisor-student interactions are an ideal time for advisors to ask students whether they are aware of specific resources that could benefit them. The advisor-student conversation featured in **Figure 2.2** is an example of an advisor using a simple, relatable dialogue to help their advisee understand the value of “free” campus resources.

**Figure 2.2. Sample dialogue to help students realize the full value of available resources**

I am having trouble keeping up with the material.

Have you been to the learning center to arrange tutoring?

No.

Ok. Let's say that you and I went to dinner at a nice restaurant. At the table next to us, there is a couple, clearly on a date. At the end of their meal, they order dessert. What's your favorite dessert?

A brownie with ice cream.

Great. So this couple orders a brownie with ice cream. The waiter sets it on the table, and it looks delicious. It's a perfect mound of brownie covered with a perfectly spherical dollop of ice cream. Do you like almonds?

Sure.

Ok, it's also got shaved almonds and whipped cream with hot fudge drizzled over the top and around the plate. It is a work of art. Immediately after the dessert arrives, the couple leaves the restaurant. The dessert is left untouched. What would you think if you saw that?

How long do we have to wait until we eat that dessert?!

Yes, but we would look at the untouched dessert and think, "Wow, that's weird. Why would anyone pay for dessert and then leave without eating it?" Right?

Yeah.

So let me ask you this, how much does it cost to go to the Learning Center or the Counseling Center?

Nothing.

How much does it cost to go talk to a faculty member?

Nothing.

It costs nothing now, but it's not free. You hear people talk about all of our free resources, but the truth is the resources are not free. You have paid good money to attend our institution, and thereby have paid for the resources. Since you've paid for them, why wouldn't you use them? Eat the dessert!

Oh, you're right! I hadn't thought about it like that.

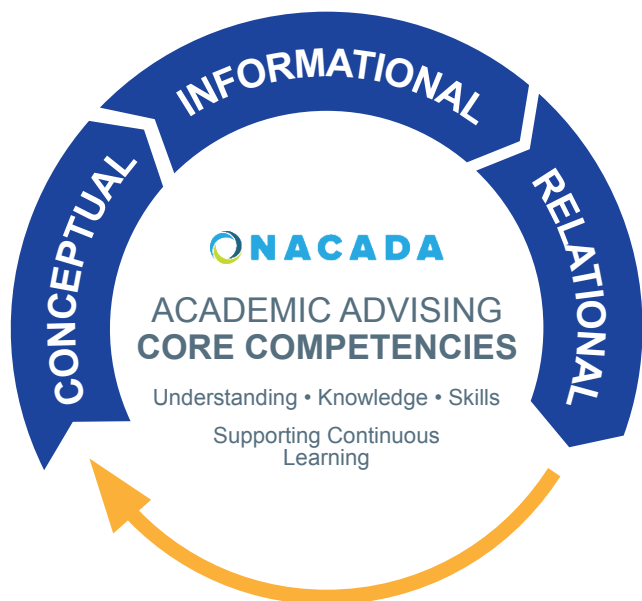
Source: Forbes & DeVasher (2018).

#### 4. Provide professional development opportunities for advisors, taking into account advisors' learning needs.

To the extent that advisors are required to transform their practices, professional development can help.<sup>72</sup> If advisors and other support staff are expected to form ongoing relationships with students, training on how best to do so can help advisor-student relationships be more fruitful. Recommendation 2 in the WWC practice guide *Strategies for Postsecondary Students in Developmental Education* offers detailed strategies for training advisors. These include training faculty and staff in “the college’s concept and definition of the advising process, the informational aspects of advising, and the relationship skills involved in supporting students’ decision-making and planning.”<sup>73</sup> Training can also teach advisors how to conduct advising-as-teaching and how to use technological advising tools as supports. Institutions can provide continuous professional development opportunities through “brown bag” events and refresher sessions. NACADA’s Academic Advising Core Competencies, summarized in **Figure 2.3**, might also be helpful for institutions to consider as they think about which knowledge and skills they want their advisors to have or develop.

The expert panel suggests that institutions tailor professional development to advisors’ learning needs, as informed by feedback

Figure 2.3. NACADA's Academic Advising Core Competencies



 **CONCEPTUAL**

Core competencies in the **Conceptual component** (concepts academic advisors must understand) include **understanding of**:

1. The history and role of academic advising in higher education.
2. NACADA's Core Values of Academic Advising.
3. Theory relevant to academic advising.
4. Academic advising approaches and strategies.
5. Expected outcomes of academic advising.
6. How equitable and inclusive environments are created and maintained.

 **INFORMATIONAL**

Core competencies in the **Informational component** (knowledge academic advisors must master) include **knowledge of**:

1. Institution specific history, mission, vision, values, and culture.
2. Curriculum, degree programs, and other academic requirements and options.
3. Institution specific policies, procedures, rules, and regulations.
4. Legal guidelines of advising practice, including privacy regulations and confidentiality.
5. The characteristics, needs, and experiences of major and emerging student populations.
6. Campus and community resources that support student success.
7. Information technology applicable to relevant advising roles.

 **RELATIONAL**

Core competencies in the **Relational component** (skills academic advisors must demonstrate) include the **ability to**:

1. Articulate a personal philosophy of academic advising.
2. Create rapport and build academic advising relationships.
3. Communicate in an inclusive and respectful manner.
4. Plan and conduct successful advising interactions.
5. Promote student understanding of the logic and purpose of the curriculum.
6. Facilitate problem solving, decision-making, meaning-making, planning, and goal setting.
7. Engage in ongoing assessment and development of self and the advising practice.

Source: NACADA (2017).

from advisors about challenges they face on the job and potential gaps in knowledge to address those challenges. Institutions with limited professional development budgets

should not underestimate the value of peer professional development, both within and across various departments on campus.

### 5. Use technology and data to promote efficient individualized advising.

The human element to advising should be maintained, but advisors can leverage technology to provide more efficient, individualized advising.<sup>74</sup> Technology that provides information about students' academic standing can help advisors reach them more efficiently by flagging which students are in need of immediate intensive support and for which a lighter touch could be sufficient.<sup>75</sup>

The panel identified InsideTrack<sup>®</sup> as an example of a program using more individualized advising supports. InsideTrack partners with universities to deliver proactive, personalized coaching to help students identify and overcome both academic and non-academic barriers to college persistence and graduation.<sup>76</sup> InsideTrack coaches call their students regularly and, in some cases, have access to course syllabi, transcripts, and additional information on students' performance and participation in specific courses. InsideTrack uses this additional information, along with predictive algorithms, to be able to reach out

to students on the right issues at the right times. This background knowledge makes conversations between coaches and students both individualized and focused on success in school.<sup>77</sup>

To facilitate the holistic counseling in the Opening Doors program, two Ohio colleges created their own database to record key information about participating students and their contacts with staff. Counselors recorded their in-person and telephone contacts with students, including meeting duration and the topics covered. They sometimes also noted email or postal mail communications. If students met with an Opening Doors counselor who was not their primary contact, the database allowed those staff to review the student's records, facilitating the team approach.<sup>78</sup>

The iPASS initiative, featured in a ***Highlights from the Field*** in this chapter, used a variety of advising technologies to better serve students, including education planning tools, early-alert systems, predictive analytics, learning management systems, and communication tools.<sup>79</sup>

### Highlights from the Field

#### Promoting Efficient Individualized Advising Through the Use of Technology: Enhanced iPASS

Early alerts and predictive analytics can inform advisers about the nature and degree of each student's needs, allowing the advisor to strategically allocate their limited time and capacity to provide the most intensive support to the students who need it the most. For example, advisers may differentiate interventions for students depending on the number and type of early-alert flags students receive; those who receive multiple flags may be considered at higher risk and be required to meet with an adviser, while students with one flag may be sufficiently served with outreach from an adviser via email.

Communication tools can also help advisers and other personnel coordinate with each other when intervening with a student so that the student receives a coherent message from across the institution. For example, when an adviser uses this technology to refer a student for services like tutoring, not only the student but also the tutor or other staff member providing the service can see the referral; the tutor can then follow up with the student. The adviser can also see whether and when the student acts on the referral and can later inquire about the student's experience with the service or ask why the student did not follow through with it.

A shared note-taking platform is another common benefit of communication tools; colleagues can see each other's notes about their interactions with students. When meeting with a student who has been served before, staff members can draw on the notes to engage in a more personalized dialogue with the student. These tools are also designed to make it easier for staff members to align their advising with previously offered information and guidance.

Advisers' interactions with students can assume a more instructional focus with the support of data and functions available from advising technologies. These technologies also allow advisers to track students' progress toward a degree more efficiently. For example, some education planning tools notify the student and the adviser when a student attempts to enroll in a course that is not part of his or her course plan; the adviser can then either intervene to get the student back on track or approve the modification. Overall, by enabling advisers and students to engage in multi-semester program planning and making it easier for students and advisers to know when students are off track, information gathered using these tools can motivate discussions that can help students attain their long-term academic and career goals.

While technology can make it easier to realize the objectives of high-quality advising, adopting technology-based practices at full scale often requires redesigning advising structures and practices, which can be a lengthy, iterative process. One study found that the institutions that were most successful at using technology to change how students experience support reassessed and improved their advising structures and practices on several occasions. The comprehensive student advising experience envisioned in the iPASS model requires time, resources, and continual refinement of structures and practices to achieve.

*(Mayer et al., 2019, p. 9-10)*

## 6. Continuously monitor student progress toward their educational goals.

Monitoring students' progress toward their educational goals will inform whether each student is on track to succeed, and whether intervention by an advisor might be beneficial. CUNY ASAP emphasizes the importance of creating data collection and management systems that allow for timely intervention. Such systems let advisors regularly assess students' progress toward

benchmarks, such as meeting advising participation requirements, that serve as indicators of the impact of the advisement model on student outcomes.

Similarly, the iPASS initiative uses a variety of technologies to track students' progress toward their educational goals. For example, advisors can use information about a student's predicted probability of persisting and early indications of academic risk to prompt a more comprehensive

discussion during the advising session about the student's progress and strategies for achieving academic and career goals. In addition, advisors can use education planning tools to help students clarify what path they want to pursue and map out the courses that students need to take each semester to complete a program of study. In some cases, advisors and students can make multiple plans, allowing students to compare the courses they would need to take to complete a degree for different programs.<sup>80</sup>

Interviews or student surveys can be used by administrators and advising staff to monitor students' perceptions of whether their needs are being met as they navigate college. If students are not meeting their educational goals, it is important to understand why and whether advising supports could have helped students overcome barriers. For example, surveys and interviews conducted by the Meyerhoff Scholars Program revealed which supports students viewed as most critical for meeting their educational goals.<sup>81</sup> Institutions can use similar information to refine or enhance their approaches to comprehensive student advising, especially if these data identify weaknesses in the supports currently offered and delivered to students.

### Potential Obstacles and the Panel's Advice

**OBSTACLE:** *Students could have a limited view of the role advisors can play in their college experience, and might have limited time available to build a relationship with their advisor.*

**PANEL'S ADVICE:** College students can be hesitant to engage in a long-term, personal relationship with their advisor, either because the college is not providing sufficient information about the benefits of engaging with an advisor or the student has limited time available after outside obligations such as dependent care or work. Institutions can communicate to students that their advisor can function as a trusted ally for overcoming academic and non-academic barriers, and that meeting with their advisor is not simply a requirement of the course selection and registration process. NACADA emphasizes the importance of this type of outreach in its approach to increasing student engagement, which features the following: (1) marketing and outreach; (2) relationship building; and (3) developing student-centered programming.<sup>82</sup>

To underscore the importance of advisor-student relationships, institutions could consider hiring more advisors to allow for smaller advising caseloads, which might promote relationship building and a more student-centered approach to advising. The Appreciative Advising framework, as depicted in **Figure 2.1** above, is one common approach used by academic advisors to enhance the effectiveness of their interactions with students. **Figure 2.4** below provides principles for advisors aiming to develop advisor-student relationships.



### Figure 2.4. Principles for developing advisor-student relationships

**Empathy** - understanding the student; ability to see students' problems & concerns through their eyes

**Respect** - belief in a student's worth & potential; non-judgmental acceptance

**Warmth** - caring, concern for student; totally attentive & nonverbally supportive

**Concreteness** - specificity & clarity; ability to recognize vagueness & specificity in student's statements; as individuals become more concrete & specific they are also able to be more clear & specific about their concerns

**Genuineness** - ability to be real & honest; verbalizations are congruent with inner feelings; advisor is not role-playing; genuineness can lead to increased trust in advisor from student

**Self-Disclosure** - advisor shares experiences & feelings similar to those of the student at an appropriate time; appropriateness is a key component; self-disclosure can be distracting & even harmful to relationship if poorly timed

**Confrontation** - ability of advisor to illustrate to the student a discrepancy between what student says & what he/she does; least threatening when discrepancies are ones that the student is sharing

**Immediacy** - "telling it like it is," between advisor & student in the here & now; focusing on the present & immediate interactions

Source: *Florida State Undergraduate Advisor Handbook*, 2018, page 18.

To meet the needs of students with obligations outside of school, such as nontraditional students, institutions should ensure that an increased number of advisors are available, both in person and virtually, on nights and weekends to engage with students when they are on campus or learning remotely.<sup>83</sup>

Students who are hesitant to meet with an advisor might be receptive to incentives to do so (see **Recommendation 4** for more detail). As they develop a relationship with their advisor, students could decide that

continued engagement is beneficial and no longer need incentives to meet with their advisor more regularly.

**OBSTACLE:** *Institutions can face challenges hiring advisors who relate to and reflect the student population.*

**PANEL'S ADVICE:** Students could be more willing to embrace a long-term relationship with an advisor they can relate to. However, colleges can face challenges building a department of advisors who themselves come with the wide range of backgrounds observed in the student population. Institutions might need to rethink their recruitment and hiring processes to create a stronger pool of advisors that reflects the cultural backgrounds of the students they serve. At the same time, institutions can generally be more thoughtful during recruitment and hiring by asking all candidates to describe their advising philosophy and to answer situational questions that are relevant to the advising roles they will be responsible for if hired.

Regardless of whether an advisor shares the same background with a given student, it is important that the advisor takes an encouraging approach that both recognizes and validates students' individual feelings and experiences.<sup>84</sup> Dialogue that encourages students' values and beliefs will help them trust the advisor and promote self-integrity. For example, the Adelante Scholarship Program sent messages that conveyed to students that they could be successful in college, that validated their experiences as Latino men, and that reinforced the Adelante Program group identity. The program also selected a Latino man to facilitate its *pláticas*, small-group conversations where students could discuss obstacles and issues experienced by Latino male students both on campus and in their communities.<sup>85</sup> Professional development requirements for advisors can include trainings on strengths-based advising and implicit bias so that they understand how to best support students who come from backgrounds that differ from their own.

Institutions might consider offering ongoing training to help advisors develop meaningful relationships with all of the students they serve, regardless of how much they have in common with their students' backgrounds. For example, the University of California Davis offers a four-part course, "Developing Deeper Advising Relationships," that is mandatory for all college and departmental advisors. A description of this course is provided in [Figure 2.5](#).

### Figure 2.5. Developing deeper advising relationships

**Developing Deeper Advising Relationships** is a four-part series that is mandatory for all college and departmental advisors at UC Davis.

#### Session 1 The Role of Social Justice in Advising

Session 1 of the workshop series was fostered by the work of the Social Justice Advisory Committee; it focuses on establishing a common definition and understanding of social justice on campus and its importance in academic advising. Topics include: understanding equity vs. equality in a university setting, acknowledging limitations and biases, brave space vs. safe space, and using inclusive language.

#### Session 2 Self-Awareness and Awareness of One's Own World View

Session 2 focuses on the importance of self-awareness and offers participants the opportunity to engage in dialogue about their multiple identities and how those identities impact their work with a diverse student population.

#### Session 3 Cultural Humility: Unpacking Bias and 'Ally' as a Verb

Session 3 promotes the creation of a Brave Space in advising, incorporating Cultural Humility, discusses the impact of stereotypes and bias on us all, and developing as an Ally in our campus community and advising practice.

#### Session 4 Developing Effective Communication Skills

Session 4 provides staff with the tools for developing more effective communication skills and the ability to understand, communicate with, and effectively interact with students across individual contexts and cultures.

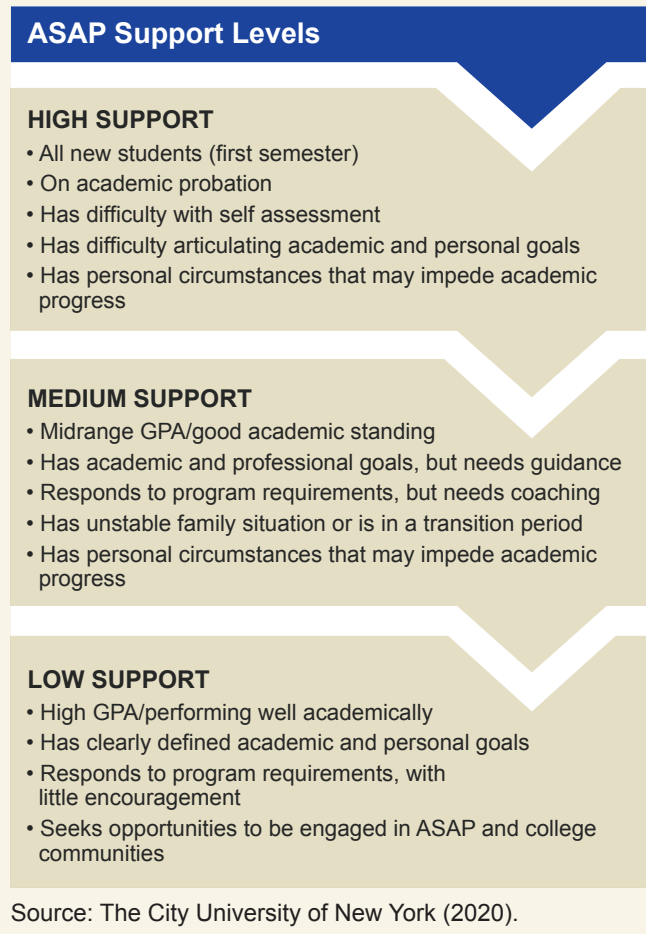
Source: University of California, Davis (n.d.).

**OBSTACLE:** *Institutions have resource constraints that can limit opportunities to reduce advisors' student caseloads.*

**PANEL'S ADVICE:** Large student caseloads can limit the frequency and duration of interactions between students and their advisors. When faced with resource constraints, colleges could consider requiring more intensive advising for students who meet certain criteria and less for others.

To accommodate larger advisement caseloads as a result of CUNY ASAP's expansion, CUNY ASAP developed a needs-based approach to advisement. CUNY ASAP advisors have individual meetings with students twice a month during the students' first semester so advisor and student can establish a strong bond and complete a comprehensive needs assessment. After the first semester, students are sorted into one of three support levels—high, medium, and low—based on three criteria: (1) academic progress, (2) personal resiliency, and (3) compliance with CUNY ASAP requirements.<sup>86</sup> The characteristics of CUNY ASAP students that align with placement in the high-, medium-, and low-needs advisement groups are summarized in [Figure 2.6](#).

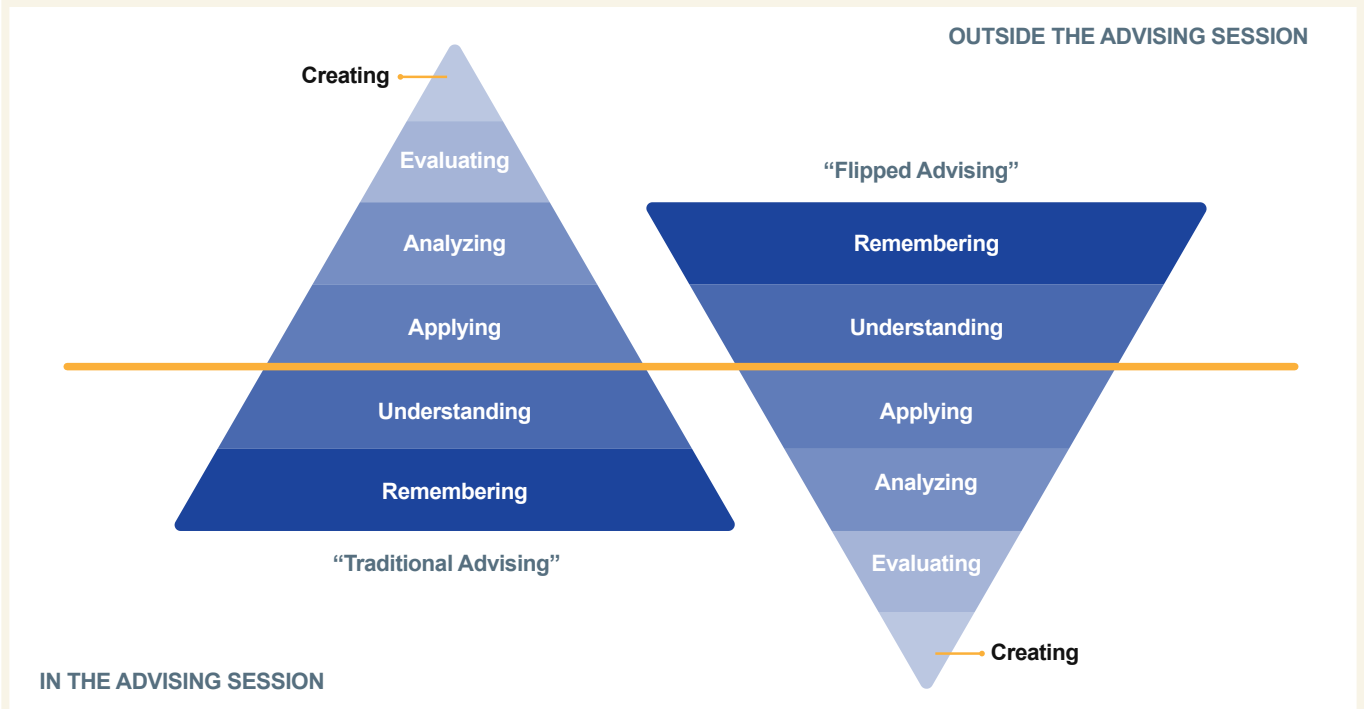
**Figure 2.6. Characteristics of CUNY ASAP’s needs-based advisement groupings**



The Ohio ASAP Replication Demonstration, as another example, required students to meet with their advisors twice each month during their first semester of the 3-year program. Starting in the second semester and extending through the end of the program, advisors “triaged” students, sorting them into low-, medium-, and high-support groups. Students in the high-support group continued to meet with their assigned advisor twice per month. Students in the medium- and low-support groups were in many cases required to meet with their advisor at least once per month.<sup>87</sup>

Another approach institutions could adopt is flipped advising, which requires students to complete their “homework” prior to each meeting with their advisor. This is meant to make advisor-student meetings more efficient by freeing students and advisors to spend more of their time together planning and decision making and less time with the advisor simply conveying information. Flipped advising changes the focus and content of what takes place in and outside of advising sessions. For example, whereas traditional advising would devote the advising session to *understanding* and *remembering* information, flipped advising instead focuses the advising session on *applying*, *analyzing*, *evaluating*, and *creating*, under the assumption that the student will commit to understanding and remembering outside of the advising session (**Figure 2.7**).<sup>88,89</sup>

Figure 2.7. Flipped advising and critical thinking as illustrated by Bloom's Cognitive Taxonomy of Learning



Source: Williamson et al. (2018).

## Recommendation 3: Use mentoring and coaching to enhance comprehensive, integrated advising in ways that support students' achievement and progression.

### Introduction

Mentoring and coaching are promising practices that can enhance the role advisors play in supporting students as they work to reach their educational goals. Though the terms “mentoring” and “coaching” are sometimes used interchangeably, mentoring and coaching both are different from advising, and often differ from each other. Clear distinctions in roles—and clear communication about what those roles entail—can ensure that mentors and coaches complement advising appropriately. The role of the mentor or coach should be clearly defined and should enhance traditional advising functions, such as course planning, to increase the value of student supports.

“Mentoring” describes a supportive learning relationship between a student and a mentor. Mentors are usually a faculty member,<sup>90</sup> a student peer,<sup>91</sup> or a professional<sup>92</sup> with experience and knowledge in the student’s desired field. The mentor is someone who shares, or can empathize with, a student’s life experience and who is committed to providing support, sharing their experiences, and offering guidance, ideally serving as an informal role model to the student.<sup>93</sup>

“Coaching” usually is more formal and structured, anchored in specific student learning or development goals. Coaches use active listening, questioning, feedback, and goal-setting techniques to help students develop new perspectives, strategies, and skills toward their personal and professional goals. Coaching is increasingly becoming professionalized, with “student success coaches” undergoing specialized training and following specific coaching models in their work with students.<sup>94</sup>

Advising, mentoring, and coaching each play an important role in a comprehensive approach to student supports, and they all share a focus on student development, supporting students in moving from *where they are* to *where they want to be*. Some coaching and mentor programs serve students campus-wide, whereas other programs are tailored and offered to specific groups of students. Mentors and coaches can play an important role in providing motivation and helping students set and achieve goals. Mentors and coaches also offer the benefit of providing someone—in addition to the advisor—who can establish a personal connection with students. In this way, mentoring and coaching can be important components of providing holistic student supports (see [Recommendation 1](#)).

WWC staff and the expert panel assigned Recommendation 3 a *strong* level of evidence, based on 12 studies of interventions that include mentoring or coaching implemented with postsecondary students in the United States or Canada. Eight of the studies<sup>95</sup> meet WWC group design standards without reservations, and the other four studies<sup>96</sup> meet WWC group design standards with reservations. The interventions demonstrated statistically significant and positive average effects on progressing in college, academic achievement, and postsecondary degree attainment (see [Table 5](#)). Evidence from the 12 studies provides a direct test of the recommendation, as mentoring or coaching is a primary component of the intervention in eight studies and a secondary component of the intervention in four studies. Mentoring or coaching was provided through:

- Peer mentors (eight studies); or
- Coaches or faculty mentors (two studies).

Table 5. Results of Meta-analysis for Recommendation 3

Outcome Domain	Average Effect of Mentoring and Coaching		
	Statistically significant and positive	Indeterminate	Statistically significant and negative
Progressing in college	●		
Academic achievement	●		
Postsecondary degree attainment	●		

Note: No studies that meet WWC standards and are relevant to this recommendation included findings in either the credential attainment or post-graduation outcomes domains.

The types of activities, frequency of meetings, and duration of the mentoring or coaching relationship varied considerably across the interventions studied. The panel has a high degree of confidence in the research suggesting that mentoring and coaching are effective practices. See [Appendix C](#) for a detailed rationale for the level of evidence assignment for Recommendation 3, including descriptions of the intervention features and findings from each study informing this recommendation.

### How to Carry Out the Recommendation

This section describes strategies, examples, and tools that support using mentoring and coaching to enhance advising practices. All figures and mentions of specific colleges or interventions in Recommendation 3 are offered as examples only and should not be read as endorsements of specific products or approaches.

- Determine whether, and if so how, mentors or coaches could be used to enhance the supports students currently receive.**

The panel recommends that college leadership and advisors identify the gaps in student supports that could be effectively

addressed by mentors or coaches. This involves thinking carefully about the role and purpose of the mentors and coaches and how they can best help students achieve their educational goals.

Peer mentors can help students use technology, show them how to enroll in courses, unmask the hidden curriculum and hidden rules of college, and provide tips and tricks on how to adjust to college and navigate the campus.<sup>97</sup> One summer bridge program, designed for first-year students at a large public 4-year college, hired previous program participants to serve as peer mentors. The role of the mentors was to connect with students, serve as an academic role model, advise on first-year adjustment issues, and be available to listen to student concerns and questions.<sup>98</sup> Peer mentors can also help students become more engaged in campus activities or apply for scholarships or leadership programs.<sup>99</sup> Finally, peer mentors can be less intimidating for students to approach with questions, can help normalize feelings and concerns, and even model how to overcome common transitions and barriers in college.<sup>100</sup>

Faculty mentors can provide insights to their field of study, access to research and internship opportunities, or guidance on

pursuing further education.<sup>101</sup> For example, faculty mentors might provide students with answers to questions such as, *What do you do with a biology degree? How do you get there? Are there biologists who look like me?* Faculty mentors can also serve as role models for students. Whether they are faculty members or peers, mentors often provide guidance based on their personal knowledge and experience, usually through informal interactions with the student.

In contrast to mentors, coaches focus their guidance on students' specific personal and academic development goals. Coaches might not have expertise in a student's specific field or area of interest, but they are professionally trained in facilitating conversations that promote purposeful self-reflection, development, and skill-building. This could include reflecting on personal strengths and weaknesses, interests, and aptitudes, as well as the connection between these traits and the student's personal growth and career goals.<sup>102</sup>

For the integration of advising, mentoring, and coaching to be effective, clarity on the role and purpose of each type of support ought to be established and shared by advisors, mentors, and coaches. Institutions should make sure advisors, mentors, and coaches are aware of the responsibilities and functions of their own role as well as others' roles. This is particularly important for institutions that offer both advising and coaching, which often overlap in practice. For example, advisors might integrate coaching strategies into their work with students and also combine some of their coaching functions with their academic advising functions. Likewise, some coaches might engage in triaging and basic needs engagement with students. Some institutions now employ professional academic coaches to perform many of the expanded advising functions the panel recommends in this guide, leaving more traditional advising

functions, such as course planning, selecting a major, and applying for graduation, to the advisors.

Finally, institutions should ensure individuals serving in each of these roles receive training that aligns with their responsibilities and functions.

### **2. Decide who will deliver mentoring and/or coaching.**

The panel recommends that institutions carefully consider who will be providing mentoring or coaching or both. Faculty members, students' peers, or outside professionals might all be well suited to serve as mentors or coaches. However, each will have their own strengths and weaknesses, competing responsibilities and demands on their time, and levels of training and preparation for taking on either role.

For peer mentoring, some programs use juniors and seniors,<sup>103</sup> whereas others use graduate students who share the student's academic interest.<sup>104</sup> One peer mentoring program, at a 4-year college in Massachusetts, paired female college students entering an engineering major with a peer mentor who was an advanced engineering student.<sup>105</sup> Mentors were all juniors or seniors and had declared majors in one of the four engineering departments.

It can be helpful for students to be paired with a mentor whom they can authentically connect with, such as someone who is similar in academic interests or background characteristics such as age, gender, race/ethnicity, or relevant lived experiences.<sup>106</sup> Faculty mentors are often paired to mentees based on academic interests. As part of a one-year faculty mentoring program for students from underrepresented groups at a 4-year college, participants were matched with volunteer faculty mentors after classes began, based on their shared academic interests.<sup>107</sup>

The panel recommends that if outside professionals are used as mentors, they should also be matched based on academic interest. For example, through the Meyerhoff Scholars Program, students were paired with a mentor who was a professional in a science, engineering, or mathematics occupation.<sup>108</sup>

For coaching, which often requires more formal training than mentoring does, some colleges hire outside vendors such as InsideTrack<sup>®</sup> to provide their coaching.<sup>109</sup> Other colleges train and use in-house support staff.

### 3. Focus mentoring on topics that prepare students for advising.

The work of mentors and advisors can be complementary, and the activities they undertake with students should be structured to maximize the benefits of both. The panel recommends developing or adopting topics for mentors to cover with students that prepare them to get the most out of meetings with their advisor. Broadly, these topics include how to clarify academic and career interests; how to identify, access, and navigate campus resources; and general academic planning.<sup>110</sup> Specific discussion topics for mentors and mentees may include:

- Navigating the course registration process, including how to access systems or platforms
- Accessing campus and departmental resources
- Networking and getting to know faculty and staff
- Adjusting to college-level academic expectations
- Choosing electives

- Balancing academic demands with personal responsibilities and socializing
- Getting involved with student organizations that align to personal or professional interests

After discussing these topics with their mentors, students would be better prepared to discuss similar questions with their advisors during formal conversations on academic planning.

Mentors can also play an important role in building student motivation and willingness to seek out and access advising. The panel suggests that topics requiring more specific knowledge of college requirements and procedures, such as course selection for specific majors, as well as more complex personal and non-academic issues, are best covered by professional advisors and counselors.

### 4. Carefully consider the format, frequency, and duration of mentoring or coaching.

Mentoring and coaching can be implemented in many different ways. Some mentoring and coaching programs are delivered in person,<sup>111</sup> others combine in-person and virtual meetings.<sup>112</sup> Mentoring and coaching can be short in duration (one semester or less)<sup>113</sup> or last an entire academic year.<sup>114</sup> The frequency (weekly, bi-weekly, or monthly) can also vary. Students can meet with mentors and coaches one-on-one or in a group format.

The panel recommends adopting a student perspective when deciding on the format, frequency, and duration of mentoring and coaching. This could involve the following considerations:

- Would certain formats, such as in-person or online, make mentoring or coaching more accessible to specific students or



groups of students, including commuter students and students with full-time jobs?

- Would students benefit from discussing certain topics in a one-on-one or a group format?
- How much time would students need with their mentor to build mutual rapport and trust?
- Are there certain time periods when students might need more frequent contact, such as end-of-semester or right before degree completion?

### 5. Provide mentors or coaches with initial and ongoing training.

The expert panel believes that training is critical for effective mentoring and coaching.<sup>115</sup> The panel recommends the focus of the training be tailored to the role and purpose of the coaching and mentoring and could include:

- Clarifying the purpose and responsibilities of mentoring and coaching;
- Introducing mentors/coaches to resources and topics to cover with students, such as how to identify student goals, review academic maps/plans, and explore campus resources;
- Specifying relevant legal and regulatory aspects of student mentoring and coaching;
- Providing guidelines for when and how to refer students to professional advising and counseling; and
- Sharing strategies for how to support student development within a broader team or structure of student supports.

The panel suggests institutions should make sure that the purpose and responsibilities of advisors, coaches, and mentors are

clearly defined; aligned with their training, professional scope, and contractual roles; and carried out according to a shared understanding of how each type of support can best help students achieve their educational goals. Shared training on roles and responsibilities, including decision rules on referrals from peer mentors to advisors and vice versa, can support a coherent experience for the student.

One peer mentoring program provided mentors with training that covered topics such as “mentor-mentee dyad role expectations, mentoring phases, effective mentoring skills, interpersonal relationship building, communication skills, and conflict resolution.”<sup>116</sup> Another mentor training involved presentations from staff in career development and placement, the tutoring center, financial aid, student support services, counseling, the Dean of Students office, the athletics department, and other student support groups, as well as a panel discussion by previous mentors.<sup>117</sup>

For mentoring programs designed to serve specific student groups, training for mentors should be tailored to that group’s unique needs.<sup>118</sup> For example, the peer mentor training for an “ethnic-based mentoring model” for Black college students at a predominantly White public 4-year university included tailored training modules on racial identity and sense of belonging for Black students and the basic theories behind mentoring, in general and in ethnicity-based mentoring specifically. This training was followed by a more in-depth training that addressed adjustment issues for Black students at predominantly White institutions, as well as small group supervision meetings that met for 2 hours every other week over the year. Supervision allowed mentors to discuss their experiences and receive guidance and troubleshooting as needed.<sup>119</sup>

## Potential Obstacles and the Panel’s Advice

**OBSTACLE:** *During budget crunches or when faced with limited staffing capacity, institutions are sometimes tempted to have peer mentors take on advising responsibilities.*

**PANEL’S ADVICE:** Peer mentoring complements advising but should not be a replacement for advising. Instead of colleges replacing trained advisors with peer mentors when faced with decreased budgets and increased student needs, they should consider alternative ways to make advising more efficient. Ways to make advising more efficient include replacing one-on-one advising sessions with group or virtual advising formats or making routine information-sharing aspects of advising available in online formats, such as webinars or video tutorials.

Peer mentors can also complement advising by doing initial triage, by helping students prepare for their advising sessions, or by helping with procedural aspects of course selection and registration. These strategies allow advisors to focus their time on more complex academic and non-academic challenges their advisees face.

**OBSTACLE:** *Mentors deployed as volunteers and without supports for mentoring activities might not stay committed to their role.*

**PANEL’S ADVICE:** The panel recommends that to the extent possible, colleges provide mentors with training, compensation, and funds to support mentoring activities. Formalizing mentoring programs can be achieved through ongoing training and supervision of mentors,<sup>120</sup> by developing manuals and handbooks,<sup>121</sup> or by using checklists to structure and guide the mentoring process. Mentors can be compensated monetarily or in other forms, such as course credit (for peer mentors)<sup>122</sup> or release time (for faculty and staff mentors).

To support mentoring activities, colleges can also provide funds or host mentor-mentee interactions. One faculty mentoring program, for example, offered each mentor a yearly allowance of \$150 per student mentored to be used for professional development expenses—such as research costs, professional membership dues, or scholarly journal subscriptions—or activities involving the mentee, such as lunch with the student or joint attendance at a sporting event. In addition, a small grant program was set up for related student activities, such as research with the mentor or travel to a research conference. It also sponsored several workshops with catered meals for the mentors and their students and distributed numerous small tokens of recognition, such as coffee mugs and pens.<sup>123</sup>

**OBSTACLE:** *It can sometimes be difficult to recruit mentors and coaches who reflect the diversity of a campus’s student population.*

**PANEL’S ADVICE:** Institutions can face challenges recruiting diverse mentors and coaches. The panel suggests developing targeted mentoring and coaching programs that focus on and are tailored to specific student groups. This is particularly important when addressing the needs of historically underserved student populations. In a mentoring model focusing on Black students at predominantly White institutions, one program recruited Black students and faculty to serve as mentors, matching them with Black students during social events.<sup>124</sup> Similarly, the Meyerhoff Scholars Program is tailored for underrepresented minority students in STEM majors, matching mentors and mentees on race.<sup>125</sup> Other programs match mentors and mentees on gender.<sup>126</sup> Yet another strategy is to intentionally recruit and hire faculty and peer mentors who have experience working with diverse populations.<sup>127</sup>

## Recommendation 4: Embed positive incentives in intentionally designed advising structures to encourage student participation and continued engagement.

### Introduction

Students might not always engage with comprehensive advising services, even if they would benefit from doing so. For this reason, the panel recommends that institutions consider ways to entice students who would benefit most from these services to use them, and then sustain their engagement.

Students who are incentivized to engage with comprehensive advising services ideally will see value in the advisor-student relationship and the academic and non-academic supports that are available to them. The hope is that if students realize the benefits of these services, they choose to continue to engage with their advisor and the supports more frequently and voluntarily. Because not all students need the same type or amount of support, the panel suggests institutions determine which students or groups of students they want to target and what might incentivize those students specifically. It is important that even those students who are deemed to be “on track” are aware of the supports available and that they feel comfortable and capable of accessing them if necessary.

Many institutions specify when students are required to meet with their advisors, and they might employ negative consequences, such as registration holds, when students do not do as the college requires. It can be tempting to build penalties into a traditional advising model, around its quick, transactional interactions with students such as course selection and registration, reviewing degree requirements, and reviewing financial aid procedures.<sup>128</sup> Instead, the panel recommends institutions embed positive incentives, which tend to be more likely to encourage students’ participation and

continued engagement with their advisor and the academic and non-academic supports they need to succeed.<sup>129</sup>

WWC staff and the expert panel assigned Recommendation 4 a *strong* level of evidence, based on six studies of interventions that include embedded incentives implemented with postsecondary students in the United States. All six studies<sup>130</sup> meet WWC group design standards without reservations. The interventions demonstrated statistically significant and positive average effects on progressing in college, academic achievement, and postsecondary degree attainment (see **Table 6**). Evidence from the six studies provides a direct test of the recommendation, as incentives are a primary component of the intervention in four studies and a secondary component of the intervention in two studies. The studied interventions included two different types of incentives:

- Student scholarships that were tied to academic milestones, credit hours, and/or grades (four studies); and
- Monthly incentives—either a small stipend or transportation benefits—that students received when they participated in advising, tutoring, and/or career services (two studies).

The scholarships were designed to incentivize students to perform satisfactorily and to persist with their studies. The monthly incentives, on the other hand, were designed to remove barriers that prevented students from attending classes while also encouraging them to access supports that were available to promote their academic and personal success. Two of the interventions that offered students scholarships also required students to regularly meet with dedicated advisors. The panel has a high degree

Table 6. Results of Meta-analysis for Recommendation 4

Outcome Domain	Average Effect of Embedded Incentives		
	Statistically significant and positive	Indeterminate	Statistically significant and negative
Progressing in college	●		
Academic achievement	●		
Postsecondary degree attainment	●		

Note: No studies that meet WWC standards and are relevant to this recommendation included findings in either the credential attainment or post-graduation outcomes domains.

of confidence in the research suggesting that embedded incentives are an effective practice. See [Appendix C](#) for a detailed rationale for the level of evidence assignment for Recommendation 4, including descriptions of the intervention features and findings from each study informing this recommendation.

## How to Carry Out the Recommendation

This section describes strategies, examples, and tools that can support using incentives in intentionally designed advising structures to encourage student participation and continued engagement. All figures and mentions of specific colleges or interventions in Recommendation 4 are offered as examples only and should not be read as endorsements of specific products or approaches.

### 1. Offer incentives for students to engage with available supports.

The panel recommends that institutions use strategies, practices, and incentives that encourage students to stay engaged with the academic and non-academic supports available to them. Incentives might be financial, such as gift cards, book vouchers,

transportation passes, parking permits, food, or subsidized childcare. Non-financial incentives might include priority registration, priority meeting times with advisors, or access to additional courses at no cost. When selecting incentives, the panel suggests institutions determine which students or groups of students they want to target and what might incentivize those students specifically. For example, when considering how to overcome barriers to transportation, one student might need a parking permit whereas another might want a bus or train pass. Institutions must also consider their available resources, as this will determine the type and frequency of incentives they offer.

Coupling the distribution of incentives with specific advising meetings or functions can help increase the likelihood that students participate in those meetings or functions. For example, the CUNY ASAP program tracked advising appointments and discovered attendance at appointments was higher because those appointments were linked to students' continued receipt of monthly MetroCards.<sup>131</sup> See [Figure 4.1](#) for more information about how the MetroCard motivated students to succeed in that program.

### Figure 4.1. How CUNY ASAP's MetroCard motivates students to succeed

#### *Javier and the Value of the MetroCard Incentive*

Javier is a Latino man who enrolled in community college immediately after high school. He was not interested in college, but his parents, who do not have college degrees themselves, convinced him it was important to continue his education. Javier took the CUNY placement exam and found out that he would have to take developmental courses in reading and math.

Javier had struggled with math throughout high school and continued to struggle in college, failing his developmental math course twice before his ASAP adviser suggested he retake the course during an intersession, when he could focus on just that class. That time, he passed and got through the requirement.

Javier's ASAP adviser found that he really struggled to motivate himself, since he was not very interested in his chosen major or in the classes he had to take. He had followed his parents' advice to enroll in college after high school, but he did not want to continue on to a bachelor's degree. Javier planned to enter the workforce as soon as he got his associate's degree. His adviser talked with him about the bigger picture of higher education and careers, but Javier felt completely burned out on school.

Although Javier was not interested in many of his classes, he was highly motivated by the MetroCard incentive and always made sure to meet the minimum requirements to receive it. He enrolled full time, attended advising as required, met with the career and employment specialist each semester, and attended tutoring for his developmental courses. His adviser said that these benchmarks, linked to receipt of the MetroCard, were the only things keeping him on track academically. Javier himself even admitted he could have used more motivation in school.

Javier received his associate's degree at the end of his third year, exactly on track with ASAP's deadline. He then entered the workforce.

Source: Scrivener et al. (2015)

Institutions should give careful consideration to how they describe and promote both financial and non-financial incentives designed to encourage students to take advantage of available supports and services. Ideally, there will be a sense of mutual responsibility, in that the college or

program is providing something that benefits students, who in turn commit to particular actions to earn the incentive. Framing incentives as a reciprocal transaction is one way to demonstrate and encourage mutual responsibility.

Institutions should prioritize positive incentives over penalties; that is, “carrots” over “sticks.” Penalties such as registration holds could lead to decreased student retention because they present an additional roadblock to registering for courses. These holds could also discourage a student from communicating with their advisor, thereby creating a missed opportunity for an advisor to help a student work through academic and/or non-academic challenges that might be part of an underlying problem affecting their success.

### 2. Incentivize face-to-face advising meetings.

Students can find face-to-face meetings with their advisors, held in-person or by videoconference, to be more helpful than emails or texts for receiving support and encouragement. Face-to-face meetings can also be more productive for working through complex activities such as goal-setting, selecting a course of study over multiple semesters, and discussing academic and career goals.<sup>132</sup>

Incentivizing face-to-face advising meetings could lead to advisor-student relationships that are more personalized. As an advisor learns about the challenges their students face, they could be better positioned to connect students with supportive services. In turn, students could come to view the advisor-student relationship as beneficial, which could be engaging and sustain a relationship throughout a student's college experience.

The Opening Doors program at Lorain County Community College offers an example of a financial incentive that encouraged

students to meet with their advisors face-to-face. Students participating in that program were eligible for a \$150 stipend per semester for two semesters, which they could use for any purpose. The aim of the stipend was to promote contact between students and their advisor. The stipend was paid in two installments each semester, after scheduled counseling meetings were completed.<sup>133</sup> Another example is the Adelante performance-based scholarship program, which was designed to support low-income Latino men at Pima Community College in Tucson, Arizona. The program provided students with up to \$4,500 in funding over three semesters, contingent on their meeting specific academic benchmarks and actively participating in advising, tutoring, and workshops.<sup>134</sup>

Though face-to-face interactions might be preferred for in-depth discussions, advisors could find it efficient and effective to use technology to accomplish advising-related administrative tasks, such as registering students for courses, entering personal information into an information management system, or tracking key dates and deadlines each semester, that do not require direct advisor-student contact. The Key Communities program, implemented at a public university in Colorado, used an early alert system for grade and performance feedback.<sup>135</sup> For these administrative tasks, face-to-face interaction could be less essential.

### **3. Use a positive, student-centered approach before, during, and after advisor-student contacts.**

A central goal of advising is to provide positive experiences, built upon relationships that enable an advisor to understand the needs of individual students, in order to help them overcome barriers to success. When advisors, administrators, faculty, and staff

use a positive, student-centered approach to advertising, delivering, and following up on supports, students could be more inclined to view those supports as helpful or worthwhile. In turn, they could be self-motivated to continue to engage with their advisor and other support providers they view as invested in their success. This could help counter the impression students sometimes have that advisors are merely gatekeepers to course selection and registration.

Positive, welcoming messages that are culturally responsive can be woven throughout students' experiences in comprehensive, integrated advising programs. For example, the Adelante Scholarship Program sent students messages that conveyed that they could be successful in college, that validated their experiences as Latino men, and that reinforced the Adelante program group identity.<sup>136</sup> Similarly, encouraging messages were an important focus of the Key Communities program, where advisors and staff first frontloaded information about high expectations and messages of belonging during a 2-day program orientation, and later continued to introduce students to faculty, staff, and peers to foster a sense of community that could support students throughout the program.<sup>137</sup>

Strengths-based advising can help increase students' confidence and motivation to achieve and persist in college. This involves having advisors identify and build on students' inherent skills and qualities in ways that help them develop and apply their strengths to new challenges and tasks.<sup>138</sup> Emphasizing students' strengths, as opposed to weaknesses or deficits, can facilitate advisor-student relationships and increase students' levels of engagement and academic self-efficacy.<sup>139</sup>

### 4. Consider incentives that extend beyond advising activities to include other milestones required for students to progress in college.

The panel recommends tying incentives not only to advisor-student contacts, but also to key activities that could ensure students are successfully progressing in college, such as using tutoring services or career services; enrolling in a minimum number of credit hours; and meeting grade point average (GPA) requirements.<sup>140</sup>

Students participating in the Ohio ASAP Replication Demonstration, a program targeting low-income, nontraditional students at three Ohio community colleges, were eligible to receive a \$50 incentive each month contingent on participation in advising, tutoring, and career services.<sup>141</sup> In the Learning Communities initiative at Kingsborough Community College, students in learning communities received a book voucher as an incentive to enroll in short courses offered between the fall and spring semesters, giving them access to even more credits in their first year.<sup>142</sup>

Adelante Scholarship Program participants were eligible for awards of up to \$1,500 per semester, for a total of three semesters, for completing a range of program requirements. A sample list of requirements and payment schedule for Adelante participants appears in **Figure 4.2**. The award was paid directly to students in three payments each semester. The first two payments were contingent on students attending an orientation and meeting with an advisor twice during the semester and on being enrolled in six or more credits. The third payment could vary in amount depending on the combination of benchmarks for academic performance and service participation completed by students, as verified through the college's electronic service use databases, students' activity books, and academic workshop sign-in sheets.<sup>143</sup>

Figure 4.2. Sample list of requirements and payment schedule for awardees

How do I learn my Adelante Award? Requirements and Payment Schedules		
Student Activity	All Students	
<b>Orientation</b> At the beginning of the semester, review program components, meet students and sign up for advising sessions.	Required	
<b>Enrolled in 6 or more credits at orientation date</b>	Required	
<b>Initial Payment:</b> For completing Adelante orientation. Students must be enrolled in 6 or more credits at the time of orientation.	\$150	
<b>First Individual Advising Session</b> Within the first half of the semester to discuss the student's plans and challenges, and to recommend and sign up for tutoring and workshops.	Required	
<b>Second Individual Advising Session</b> Within the second half of the semester discuss the student's academic progress and challenges, progress in attending tutoring and workshops, and to prepare for spring registration.	Required	
<b>Enrolled in 6 or more credits at census date (10/5/12)</b>	Required	
<b>Midterm Payment</b> For completing both advising sessions. Students must be enrolled in 6 or more credit hours at the census (10/5/12) in order to receive midterm payment at time of the 2nd advising session. If a student does not meet this enrollment requirement, but enrolls in late-start classes after the census, then the \$150 will be mailed to them.	\$150	
Student Activity	Partial Services Award	Full Services Award
<b>Services</b> Participation in a certain number of Pláticas, tutoring sessions and workshops is required; Advisors and students work together to determine breakdown of remaining flexible contacts	4 Total Required (breakdown below)	6 Total Required (breakdown below)
<b>Pláticas</b> Facilitated peer discussion group on Latino issues	1 required	1 required
<b>Tutoring Sessions</b> Visit a Learning/Tutoring center; tutoring can be completed in ½ or full-hour sessions.	1 hour required	1 hour required
<b>Academic Workshops</b> Facilitated workshops on a variety of student success topics; selected jointly by advisor and student to best meet students' needs.	1 required	1 required
<b>Flexible Contacts</b> Students will work with their advisors to determine the best combination of additional tutoring, workshops, or Pláticas to best meet students' needs. <i>Note 1 hour of tutoring equals 1 contact</i>	1 required	3 required
<b>Final Service Payment:</b> For meeting all service requirements above	\$100*	\$200*
Student Activity	Part-time Award	Full-time Award
<b>Academic Performance Award:</b> Based on earning a "C" grade or better in a minimum number of credit hours. "P" grades are eligible, but "I" grades are not eligible.	<b>Part-Time:</b> Between a 6-11 credits with a "C" or better	<b>Full-Time:</b> 12 or more credits with a "C" or better
<b>Final Academic Performance Payment</b>	\$200	\$1,000
	<b>Part-time Student</b>	<b>Full-time Student</b>
<b>Total Maximum Adelante Award</b>	<b>\$700</b>	<b>\$1,500</b>
<b>* The Services Award is not dependent on full or part time status. Students can earn either award.</b>		

Source: Patel & Valenzuela (2013).



The Vision Inspired Scholarship through Academic Achievement (VISTA) scholarship program provided up to \$1,000 in additional financial aid in each of four consecutive semesters contingent upon students meeting with their advisors at least two times per semester.<sup>144</sup> This aid was awarded in increments tied to academic milestones, and payments were made directly to students. The program provided cash payments to students who enrolled in at least 12 credit hours in their first semester, in at least 15 credit hours in subsequent semesters, and earned a GPA of 2.0 or higher.

### Potential Obstacles and the Panel's Advice

**OBSTACLE:** *Institutions might lack the resources to pay for and administer financial incentives.*

**PANEL'S ADVICE:** Incentives can require additional resources that institutions do not have readily available. Institutions could consider redirecting funds from activities without clear evidence of effectiveness in improving student outcomes to new, evidence-based interventions designed to directly serve students. Institutions might also consider directing whatever short-term investments in incentives they can make toward activities designed to foster high-quality initial advisor-student interactions, with the expectation that students will see the value in advising and engage without ongoing financial support.

Non-financial incentives can also be an effective way to encourage students to engage with their advisors. Examples include priority registration; priority appointments with staff providing other support services, such as financial aid; priority parking; vouchers to the bookstore or cafeteria; tickets to a campus event; work-study opportunities; and letters of recommendation for internships. Colleges might also consider asking

students what types of incentives are of value to them, as students might offer novel suggestions that are non-monetary.

Some institutions have even offered discounted tuition as an incentive for students to participate in advising as they progress toward completing their degree requirements. One model enables students to “buy one course, get the second course free” during summer months, conditional on meeting advising objectives. This can potentially be accomplished cost-effectively simply by filling in seats in summer course sections that typically run at half capacity, thereby not adding to an institution's financial costs. For example, CUNY has offered a Buy One, Get One Free (BOGO) waiver that offers students the opportunity to complete two summer courses, with the lower-cost course tuition free.<sup>145</sup>

**OBSTACLE:** *Incentives could have unintended consequences if they are not administered equitably.*

**PANEL'S ADVICE:** When designing incentives to promote advisor-student contact, it is important for institutions to avoid unintended inequities. For instance, if only select students are eligible for an incentive, then ineligible students or those unable to meet the incentive requirements could be discouraged from engaging with their advisor. Positive incentives should be integrated into advising models in ways that consider potential barriers students could be facing, as well. In-person meetings, for example, should not be required if advising is offered only during the day and the student population includes working students who attend class at night.

**OBSTACLE:** *Administering incentives can distract advisors from their core advising functions.*

**PANEL'S ADVICE:** It is possible that some advisors involved in administering incentives could feel more responsible for monitoring students' compliance with program requirements tied to the incentive payments than for taking

## Recommendation 4

advantage of the extra opportunities to provide students with guidance. For example, an evaluation of the Opening Doors program in Louisiana found advisors working with the program participants sometimes spent more time monitoring compliance than they did advising them on courses or helping them address non-academic problems.<sup>146</sup>

To the extent feasible, the panel suggests institutions should consider automating the monitoring process. Relatedly, colleges should also reinforce the importance of student engagement and measure that engagement,

not simply the benchmarks required to meet an incentive. This might include collecting information on how the advisors help students beyond the incentive requirements. These changes might require adopting and implementing a culture of support. It also might take time for institutions to shift away from a “check the box” culture of advising to one that encourages students to be more engaged with their advisors as well as with the academic and non-academic supports students are connected to through advising.

## Glossary

### A

**academic supports** refer to academic advising, tutoring, textbook lending, additional study sessions, and instructional support in math/writing, among others.

**advisor/advising** is a collaborative process between a student (“advisee”) and an advisor designed to help the student realize their educational potential and their academic goals.

**advising leadership** refers to any person who is in a position of authority or who manages advising staff, practices, procedures, and policies at a postsecondary institution.

### C

**career and employment services** refer to assistance with employment and career development, including employment workshops, career exploration, career navigation, resume workshops, mock interviews, alumni network events, and assistance with job or internship placements.

**coach/coaching** refers to a structured learning process facilitated by a trained coach. The coach uses active listening, questioning, feedback, and goal-setting techniques to help students develop new perspectives, strategies, and skills that help them reach their educational, personal, and professional goals.

**comprehensive, integrated advising** refers to advising that is intentionally designed to incorporate and connect students with a broad range of relevant academic and non-academic supports, including instructional support, counseling, mentoring and coaching, and career services, among others.

**counselor** refers to a mental health specialist who provides mental health support to students. Advisors and career support staff are sometimes referred to as “counselors” or “career counselors.”

### D

**developmental education courses** are designed to develop the reading, writing, or math skills of students who are deemed—often through standardized tests—underprepared for college-level courses. Developmental education courses, which are sometimes called “remedial” education courses, are typically not credit bearing.

### E

**early-alert system** refers to an online administrative system that monitors student academic progression and performance, detects individual students falling behind, and notifies student support staff and/or faculty. Early alert systems facilitate detection of and proactive responses to students in need of academic and non-academic supports.

**enhanced advising** replaces the quick, transactional structure of traditional advising with a more holistic structure in which advisors ask deeper questions and engage more with students to help them succeed. (Compare with [traditional advising](#).)

## F

**faculty** refers to any person who teaches full- or part-time at the postsecondary level. This includes instructors and adjunct professors; it can also include graduate students and other staff responsible for teaching courses.

**financial advising and support** includes tuition support; support for other education-related expenses, including books, fees for certification exams, work boots, or uniforms; funds for transportation or childcare; and guidance on how to identify and access external funding opportunities, such as Pell grants and other types of financial aid.

**flipped advising** refers to a model where students engage in preparatory advising activities, such as online modules and exercises, prior to and between meetings with the advisor. This allows the advisor to focus on more essential aspects of academic and career planning during advising sessions.

## G

**group design study** refers to research that includes an intervention group and one or more comparison groups. Examples include randomized controlled trials (RCTs) and quasi-experimental design studies (QEDs).

## H

**hidden curriculum** refers to the unwritten, unofficial lessons, values, and perspectives that students are expected to learn in school. In postsecondary settings, this can include things such as the importance of seeking opportunities to network with faculty members or to visit career services to seek an internship in the first few years of college. First-generation college students frequently are not aware of these unwritten tips and tricks and can benefit most from explicit exposure to them.

**historically underserved students** are the category of students not considered when U.S. education systems were originally designed. Examples include students of first-generation immigrants, from low-income families, of adult status, of color, of marginalized gender identities, from second-language backgrounds, of undocumented status, with military service, with disabilities, with dependents, in foster care, or with a record of incarceration.

**holistic student support** provides all students with the types and intensities of information, services, and resources they need to identify, select, and progress on the best pathway toward achieving their educational and career goals. Holistic student support meets students where they are developmentally, addresses their individual needs, leverages their strengths, and focuses on student learning and development.

## I

**incentives** are encouragements to take up services or complete tasks. Financial incentives include gift cards, book vouchers, transportation passes, parking permits, food, or subsidized childcare; non-financial incentives include priority registration, priority meeting times with advisors, and access to additional courses at no cost.

## L

**learning management system** is a software application used by staff and faculty in postsecondary education to deliver academic and non-academic content and resources, as well as to track students' progress, activities, and performance.

## M

**mentor/mentoring** refers to a supportive learning relationship between a student and a mentor. The mentor, who might be a student peer, faculty member, or professional, provides support, guidance, and an informal role model to the student (“mentee”).

**meta-analysis** is a quantitative statistical analysis of several separate but similar experiments or studies in order to test the pooled data for statistical significance.

## N

**non-academic** supports include supports outside of the classroom, such as career development and long-term academic planning. They can also include basic needs supports, such as assistance with life challenges (e.g., family or work obligations, food security, housing issues, transportation, and childcare) that are interfering with a student's academic progress.

## P

**predictive analytics** describes a wide range of statistical techniques that include data mining, machine learning, and predictive modeling that analyze existing data to make predictions about future events and trends, including the likelihood of a student's success.

**proactive advising** refers to a model where advisors anticipate and continuously engage students. The primary goal is to develop a caring and beneficial relationship that increases students' academic motivation and persistence and helps “catch” students before they encounter barriers that hinder their academic progress. Sometimes referred to as “intrusive” advising.

## S

**strengths-based advising** refers to a model where advisors identify and build on the inherent talents students bring with them into college, teaching students to develop and apply their strengths to new and challenging learning tasks.

**student-centered advising** focuses less on advisors passing on information and advice and more on advisors coaching students to develop attitudes, skills, and behaviors as learners, decisionmakers, and community participants, with success measured in terms of learner outcomes.

**student support staff** refers to any person at a postsecondary institution who provides direct assistance to students, including advisors, mentors, career counselors, tutors, and financial aid staff, among others.

### T

**tailored advising** refers to advising that is personalized to the individual academic, personal, professional, and career needs and goals of the student.

**traditional advising** refers to advising focused on class schedules, degree requirements, and financial aid procedures. Compare to enhanced advising.

**tutor/tutoring** is instructional support provided by a tutor that helps students develop learning strategies and improve their academic performance. Tutoring can be implemented in a one-on-one or group format.

## Appendix A: Postscript From the Institute of Education Sciences

### What Is a Practice Guide?

The What Works Clearinghouse™ (WWC) within the Institute of Education Sciences (IES) publishes practice guides to share expert recommendations addressing a key education challenge. Each recommendation in the practice guides is explicitly connected to supporting evidence from studies that meet WWC standards.

### How Are Practice Guides Developed?

To produce a practice guide, IES first selects a topic based on the needs of the field. Next, working with a WWC contractor, IES selects a panel chair who is a national expert on the topic and panelists to co-author the guide. Panelists are selected based on their expertise in the field and the belief that they can work together to develop relevant, evidence-based recommendations. Panels include at least two current educators who are actively working in the field.

The WWC contractor conducts a systematic literature search and consults with the panel to identify relevant research studies. These studies are then reviewed using WWC design standards by the WWC contractor who assesses the internal validity of each study.<sup>147</sup> The panel synthesizes the studies that meet WWC standards into recommendations. The panel works with the WWC contractor to draft the practice guide.

The practice guide is then peer reviewed. This review is independent of the panel and the federal and contractor staff who supported the development of the guide. A critical task of the peer reviewers is to determine whether the evidence cited in support of each recommendation is up to date and that studies of similar or better quality with contradictory results have not been overlooked. Peer reviewers also evaluate whether the level of evidence category assigned to each recommendation is appropriate. The WWC contractor revises the guide to address concerns identified by the external peer reviewers and IES.

### Levels of Evidence for What Works Clearinghouse Practice Guides

The level of evidence represents the quality and quantity of existing research supporting each recommendation. The panel assigns each recommendation one of the following three levels of evidence: strong evidence, moderate evidence, and minimal evidence.

A **strong** level of evidence rating refers to evidence from more than one well-designed, well-implemented experimental study that the recommended practices improve relevant outcomes for the population of students relevant to the practice guide. In other words, this level of evidence indicates that there is strong causal and generalizable evidence to support the panel's recommendation.

A **moderate** level of evidence rating refers either to evidence from well-designed, well-implemented quasi-experimental design studies, studies where the sample does not represent the population of students relevant to the practice guide, or only one well-designed, well-implemented experimental study. In other words, this level of evidence indicates that the relevant research may not be generalizable or that the WWC has some reservations about the quality of the research for causal inferences because of the design or implementation of the studies.

A *minimal* level of evidence rating suggests that the panel and the WWC cannot point to a body of evidence that demonstrates the practice's positive (or potentially positive) effects on student outcomes. In some cases, this simply means that the recommended practices would be difficult to study using an experimental or quasi-experimental research design; in other cases, it means that researchers have not yet studied the practice, or that there is a lack of evidence or conflicting evidence about its effectiveness. A minimal evidence rating does not indicate that the panel views the recommendation as any less important than other recommendations with strong or moderate evidence ratings.

To determine these evidence ratings, the panelists first conduct a careful review of the studies supporting each recommendation. For each recommendation, they examine the entire evidence base, taking into account the following considerations:

- The extent of evidence meeting WWC standards.
- The weighted mean effect size from the fixed-effects meta-analysis for each relevant outcome domain, including its sign and statistical significance.<sup>148</sup>
- How well the studies represent the range of participants, settings, and outcomes relevant to the recommendation.
- Whether findings from the studies can be attributed to the recommended practice.
- The panel's confidence in the effectiveness of the recommended practice.

The panel determines the level of evidence rating for a recommendation based on each of the criteria in **Table A.1**. For a recommendation to get a strong rating, the research must be rated strong on each criterion. If at least one criterion receives a rating of moderate and none receives a rating of minimal, then the level of evidence for the recommendation is determined to be moderate. If one or more criteria receive a rating of minimal, then the level of evidence for the recommendation is determined to be minimal.



Table A.1. IES levels of evidence for What Works Clearinghouse practice guides

CRITERIA	STRONG Evidence Base	MODERATE Evidence Base	MINIMAL Evidence Base
Extent of evidence	The research includes two or more studies that meet WWC standards. The studies include more than one setting and a sample of more than 350 individuals.	The research includes at least one study that meets WWC standards. The study or studies either includes only one setting or a sample of fewer than 350 individuals.	The research does not include at least one study that meets WWC standards.
Effects on relevant outcomes <sup>149</sup>	<p>For at least half of the key outcome domains<sup>150</sup> with findings meeting WWC standards, the following conditions are met:</p> <ul style="list-style-type: none"> <li>The mean effect from a fixed-effects meta-analysis<sup>151</sup> is statistically significant and positive; AND</li> <li>More than 50.0 percent of the fixed-effects meta-analytic weight comes from studies that Meet WWC Standards Without Reservations.</li> </ul> <p>The mean effect from a fixed-effects meta-analysis is not statistically significant and negative for any key outcome domain relevant for the recommendation.</p>	<p>For at least half of the key outcome domains with findings meeting WWC standards, the following conditions are met:</p> <ul style="list-style-type: none"> <li>The mean effect from a fixed-effects meta-analysis is statistically significant and positive; AND</li> <li>More than 50.0 percent of the fixed-effects meta-analytic weight comes from studies that Meet WWC Standards With Reservations.</li> </ul> <p>Contradictory evidence from a fixed-effects meta-analysis that is statistically significant and negative is considered with regard to relevance to the scope of the recommendation.</p>	<p>For over half of the key outcome domains with findings meeting WWC standards, at least one of the following conditions is met:</p> <ul style="list-style-type: none"> <li>The mean effect from a fixed-effects meta-analysis is NOT statistically significant and positive; OR</li> <li>No studies meet WWC standards.</li> </ul>
Relevance to scope	The research has direct relevance to scope—relevant settings, populations, comparisons, and outcomes evaluated.	Relevance to scope may vary. At least some research is directly relevant to scope.	No research relevant to the scope of the recommendation could be located.
Relationship between research and the recommendation	The recommendation is directly tested or the recommendation is a major component of the interventions evaluated in at least half of the studies.	The recommendation is directly tested or the recommendation is a major component of the interventions evaluated in less than half of the studies.	The recommendation is not tested in the studies, and the panel provides references to one or more peer-reviewed publications that expound theories that support the recommendation.

CRITERIA	STRONG Evidence Base	MODERATE Evidence Base	MINIMAL Evidence Base
Panel confidence	The panel has a high degree of confidence that a given practice is effective.	Panel may not be confident about whether the research has effectively controlled for other explanations or whether the practice would be effective in most or all contexts.	In the panel's opinion, the recommendation must be addressed as part of the practice guide; however, the panel cannot point to a body of research that rises to the level of moderate or strong.
Role of expert opinion	Not applicable.	Not applicable.	The recommendation reflects expert opinion based on reasonable extrapolations of research.
When assessment is the focus of the recommendation	For assessments, research meets the standards of <i>The Standards for Educational and Psychological Testing</i> . <sup>152</sup>	For assessments, research provides evidence of reliability that meets <i>The Standards for Educational and Psychological Testing</i> , but samples may not adequately represent the population on which the recommendation is focused.	Not applicable.
Overall level of evidence	A recommendation satisfies a "strong" level of evidence for all applicable criteria above.	A recommendation satisfies a "moderate" level of evidence for at least one applicable criterion above, and no criterion has a "minimal" level of evidence.	A recommendation satisfies a "minimal" level of evidence for at least one applicable criterion above, and all applicable criteria have at least a "minimal" level of evidence.

## A Final Note About WWC Practice Guides

Expert panels try to build a consensus, forging statements that all their members endorse. Practice guides do more than find common ground; they create a list of actionable recommendations. Where research clearly shows which practices are effective, the panelists use this evidence to guide their recommendations. However, in some cases, research does not provide a clear indication of what works. In these cases, the panelists' interpretation of the existing, but incomplete, evidence plays an important role in developing the recommendations.

## Appendix B: Methods and Processes for Developing This Practice Guide

### Phase 1: Selecting the Panel; Establishing a Review Protocol

**Expert Panel.** The WWC established a six-member expert panel to advise on the development of the practice guide. The panel consisted of researchers who were at the forefront of postsecondary advising research and practitioners with experience in implementing postsecondary advising interventions.

Practice Guide Review Protocol. The WWC worked with the expert panel to develop the practice guide review protocol, available at <https://ies.ed.gov/ncee/wwc/Document/1293>, which clarifies the practice guide’s purpose and scope. Five questions were identified to guide the literature search and the evidence review effort:

- Which advising interventions are effective at helping students progress and persist in college?
- Which advising interventions are effective at helping students improve academic achievement?
- Which advising interventions are effective at helping students complete their degree?
- Which advising interventions are effective at helping students improve their post-graduation educational and employment outcomes (e.g., earnings, wage, and graduate program enrollment)?
- Which advising interventions are particularly effective for certain subgroups of students (including first-generation college students, women, underrepresented minorities, academically underprepared students, students from low socioeconomic status backgrounds, returning students, and/or transfer students)?

The timeframe for the literature search was approximately 20 years, from January 1999 to December 2019. The eligible sample included postsecondary students in the United States or Canada. Eligible study designs included randomized controlled trials (RCTs) and quasi-experimental design studies (QEDs). Studies had to include an advising intervention with a primary focus on improving student outcomes during or after college. Only outcomes that fit into one of five outcome domains addressing postsecondary student outcomes were eligible for inclusion. The five domains were:

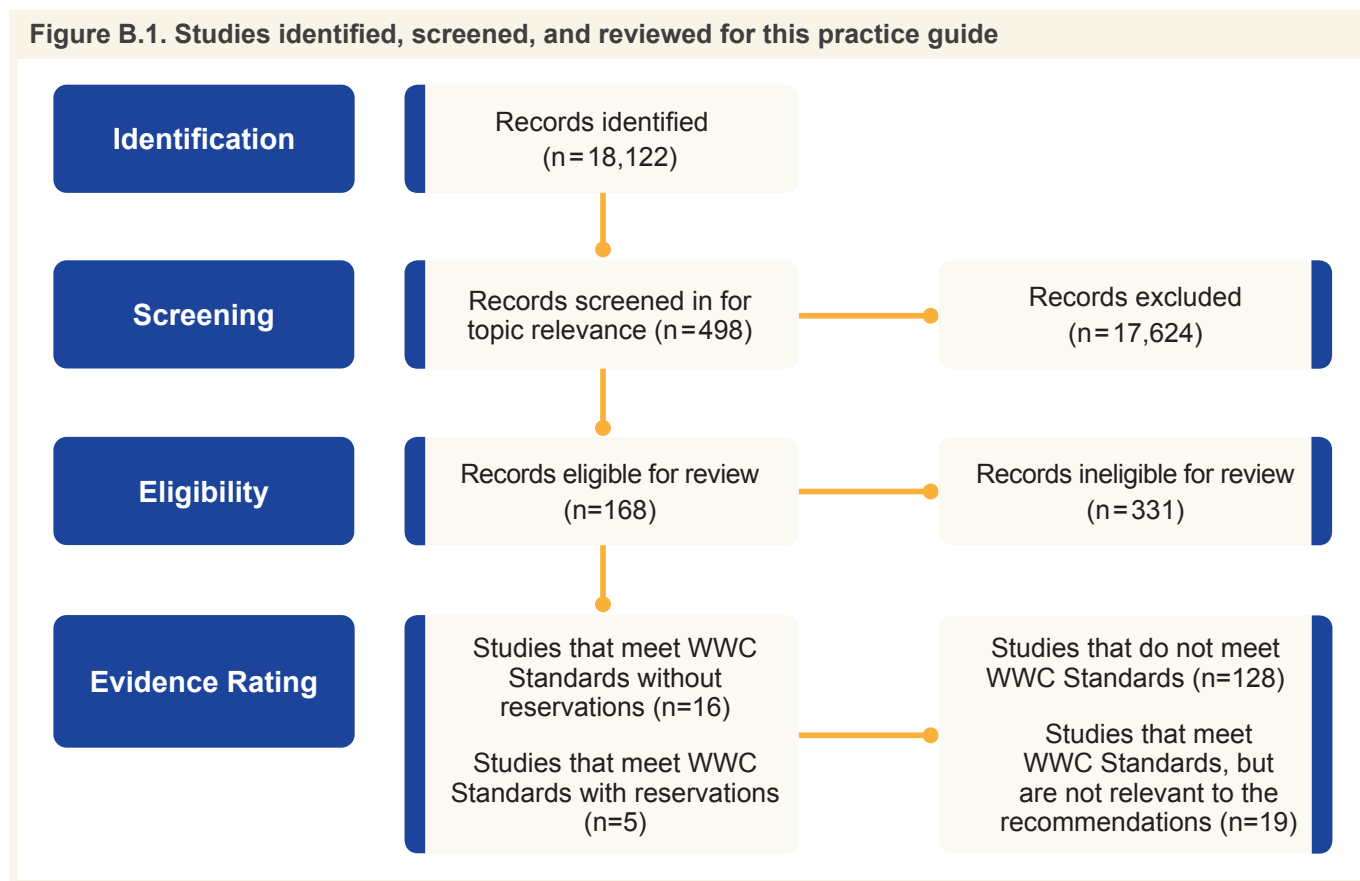
1. Progressing in college
2. Academic achievement
3. Postsecondary degree attainment
4. Credential attainment
5. Post-graduation outcomes

For additional details, the protocol can be accessed on the What Works Clearinghouse website.<sup>153</sup>

## Phase 2: Literature Search and Review

A targeted yet comprehensive search of electronic databases was conducted using keywords focused on eligible advising intervention components, population, setting, study design, and outcomes. Panel members also recommended studies that could potentially contribute to the guide.

A total of more than 18,000 records were identified and screened using a multi-stage screening process to determine whether they focused on advising interventions and met the eligibility criteria detailed in the protocol (i.e., eligible advising interventions, population, setting, study design, and outcomes). This screening process resulted in 168 eligible studies that were reviewed using WWC 4.0 group design standards.<sup>154</sup> For a study to meet WWC standards, at least one contrast must meet standards with or without reservations. See **Figure B.1.** for the number of records that went through the screening and eligibility processes and the number of studies that were reviewed and included as supporting evidence in the practice guide with the corresponding WWC evidence ratings.



### Phase 3: Generating the Recommendations

WWC staff conducted a detailed examination of the 40 studies that meet WWC standards to identify practices that played a role in each intervention. In conjunction with the WWC, the panel identified four recommendations that were grounded in evidence provided by 21 of the 40 studies that meet WWC standards. All studies relevant to a recommendation were included in the practice guide, even if they did not provide statistically significant evidence of positive impacts.<sup>155</sup> The remaining 19 studies that meet WWC standards did not provide evidence relevant to the four recommendations identified by the panel.<sup>156</sup> After drafting the evidence-based recommendations, the panel suggested ideas for carrying out the recommendations.

### Phase 4: Drafting the Practice Guide

WWC staff worked with the panel to further expand and clarify each recommendation and delineate how to implement each recommendation. WWC staff then used an iterative process to draft the recommendations, soliciting feedback from the panel and revising as needed at each stage. WWC staff also compiled the level of evidence for each recommendation and drafted the technical appendices. The practice guide underwent several rounds of review, including IES external peer review (as described in [Appendix A](#)).

## Appendix C: Rationale for Evidence Ratings

### Conducting Reviews of Eligible Studies

WWC-certified staff reviewed 40 studies to assess the quality of evidence supporting education programs and practices, using WWC group design standards version 4.0. Of these 40 studies, 21 provide the evidence for the recommendations in this practice guide. These 21 studies are bolded in the Notes and the References sections. Reviews of all 40 individual studies reviewed for this practice guide are available on the What Works Clearinghouse website at <https://ies.ed.gov/ncee/wwc/ReviewedStudies/Index#/ProductId:XXX>.

### Determining Relevance to Recommendations

About half of the 21 studies provide evidence for more than one recommendation, as the interventions in these studies include more than one practice (or component) for improving student outcomes. For example, one multi-component intervention might include comprehensive and integrated advising (**Recommendation 1**); sustained, personalized advising relationships (**Recommendation 2**); and mentoring or coaching (**Recommendation 3**) and thus provide evidence for three recommendations in this guide.

It is not possible to identify whether one particular component or a combination of components within a multi-component intervention produced an effect. Thus, the calculated effect sizes reflect the effect of each full intervention package. The project staff assessed which components were likely to cause an effect based on their prominence in the intervention program. Major intervention components in each study that meets standards were then assigned to the evidence base for the relevant recommendation. In **Table C.1**, the mapping between each study and the four recommendations is presented. Table C.1 also indicates which studies include large samples, that is 350 or more participants, and which were conducted in multiple settings. Eight of the 21 studies include large samples and were conducted in multiple settings, six studies only include large samples. All studies that included multiple settings also included a large sample.

**Table C.1. Mapping between studies and recommendations**

Study	Sample Size and Setting		Recommendation			
	Medium to large sample <sup>a</sup>	Multiple settings	1. Comprehensive, Integrated Advising	2. Sustained, Personalized Advising	3. Mentoring or Coaching	4. Embedded Incentives
Bettinger & Baker (2014)	•	•		•	•	
Binder et al. (2015)	•			•		•
Brock & Richburg-Hayes (2006)	•	•				•
Campbell & Campbell (2007)	•				•	

Study	Sample Size and Setting		Recommendation			
	Medium to large sample <sup>a</sup>	Multiple settings	1. Comprehensive, Integrated Advising	2. Sustained, Personalized Advising	3. Mentoring or Coaching	4. Embedded Incentives
Dennehy & Dasgupta (2017)					•	
Hodara et al. (2017)	•		•	•		
Kim et al. (2013)					•	
Lavallais (2017)					•	
Maton et al. (2000)			•	•	•	
Mayer et al. (2019)	•	•		•	•	
Medina (2016)	•				•	
Miller et al. (2020)	•	•	•	•		•
Nosaka & Novak (2014)	•		•	•	•	
Oreopoulos & Petronijevic (2018)	•	•			•	
Patel & Valenzuela (2013)	•		•	•		•
Scrivener & Weiss (2009)	•	•		•		•
Scrivener et al. (2015)	•	•	•	•		•
Scrivener et al. (2018)	•	•	•			
Servies (1999)					•	
Sundy (2017)			•			
Thomas (2005)					•	

<sup>a</sup> A study with a *large sample* includes 350 or more participants.

## Determining Relevant Outcomes

To simplify and focus the synthesis of evidence, the WWC worked with the panel to identify which of five outcome domains are relevant for each recommendation. The domains are listed in **Table C.2**. All five outcome domains are relevant to all four recommendations, as one might reasonably expect that the practices embedded in each recommendation could potentially improve outcomes in each domain. However, no studies that meet WWC standards and are relevant to a recommendation included findings in either the credential attainment or post-graduation outcomes domains.

The panel and staff considered only the findings in the predetermined relevant domains when determining the level of evidence for each recommendation. For brevity, only findings in relevant domains are presented in this appendix.

**Table C.2. Relevant domains for each recommendation**

Recommendations 1-4
1. Progressing in college
2. Academic achievement
3. Postsecondary degree attainment
4. Credential attainment
5. Post-graduation outcomes

## Estimating Fixed-Effects Meta-Analytic Effect Sizes

As discussed in [Appendix A](#), the level of evidence determination for each recommendation relied on the extent of the evidence from the supporting studies. To synthesize the evidence across studies for each recommendation, the WWC calculated a weighted fixed-effects meta-analytic mean effect size for each relevant outcome domain in which at least two studies had findings.<sup>157</sup> This pooled estimate, which treats all of the studies contributing to that practice recommendation together as a single study, means the WWC did not rely on a “vote counting” approach to assess evidence of positive effects on any relevant outcome. For domains in which only one study had findings, the study’s domain-level effect size was used in the level of evidence determination. To calculate the meta-analytic weight, studies were weighted by the inverse of the variance of each study’s effect size. Thus, large-scale studies received more weight than small-scale studies. The statistical significance of each effect size for each outcome domain was calculated using a z-test. By pooling samples across studies, meta-analytic mean effect sizes can have greater precision than their component study-level effect sizes. Several studies with imprecisely estimated non-significant positive effects can be synthesized into a precisely estimated significant positive meta-analytic mean effect. For additional information on this process, see appendix H of the WWC Version 4.1 Procedures Handbook.

To ensure that the resulting effect sizes were statistically independent, only one contrast from each study was included in the analysis.<sup>158</sup> In the case of multiple-contrast studies, only the findings from the contrast most relevant to the recommendation were included in the meta-analytic effect size calculation. Relevant contrasts that compared the effectiveness of two interventions were excluded from the meta-analysis.

For consistency, the meta-analytic effect size calculation for each domain is based on outcomes measured closest to the end of the intervention, with exceptions for specific domains.<sup>159</sup> The effect sizes for the domains for each recommendation are listed in Tables [C.4](#), [C.6](#), [C.8](#), and [C.10](#).



## Recommendation 1: Intentionally design and deliver comprehensive, integrated advising that incorporates academic and non-academic supports to empower students to reach their educational goals.

### Rationale for Recommendation 1 Level of Evidence: *Moderate*

WWC staff and the expert panel assigned Recommendation 1 a *moderate* level of evidence, based on eight studies of comprehensive, integrated advising interventions. Four of the studies<sup>160</sup> meet WWC group design standards without reservations, and the other four studies<sup>161</sup> meet WWC group design standards with reservations.

Across the eight studies, there were findings in three outcome domains (**Table C.3**) even though all five outcome domains were relevant for this recommendation. All three domains had statistically significant, positive meta-analytic effect sizes: progressing in college ( $g = 0.23$ ,  $p < .01$ ), academic achievement ( $g = 0.26$ ,  $p < .01$ ), and postsecondary degree attainment ( $g = 0.39$ ,  $p < .01$ ).

**Table C.3. Domain-level effect sizes across the eight studies supporting Recommendation 1**

Domain	Number of studies	Mean effect size	95% Confidence interval	p-Value
Progressing in college	6	<b>0.23</b>	0.19, 0.26	< 0.01
Academic achievement	5	<b>0.26</b>	0.21, 0.31	< 0.01
Postsecondary degree attainment	3	<b>0.39</b>	0.33, 0.45	< 0.01

Note: Significant findings are bolded. ns = nonsignificant findings. All effect sizes were calculated using a fixed effects meta-analytic effect size across studies.

Evidence from the eight studies provides a direct test of the recommendation, as all interventions evaluated provide comprehensive and integrated advising. In **Hodara et al. (2017)**, the intervention is a comprehensive community college scholarship and advising program that includes transportation assistance, emergency supports, summer orientation, a college success coach, college and career success courses, and transfer support. In **Maton et al. (2000)**, the intervention includes financial aid, a summer bridge program, community-building activities, personal advising, counseling, mentorship, and tutoring and community service. In **Miller et al. (2020)**, the intervention includes comprehensive advising, tutoring, financial support, course enrollment support, a full-time enrollment requirement, and holistic support from program staff. In **Nosaka & Novak (2014)**, the intervention is a learning community that includes a summer orientation, integrated courses and a seminar, peer mentoring, an early alert system, a shared residence hall, and community-building events. In **Patel & Valenzuela (2013)**, the intervention is a scholarship program that includes an orientation, advising, tutoring, academic workshops, and learning activities. In **Scrivener et al. (2015)**, the intervention includes a full-time enrollment requirement, a dedicated advisor, support from a dedicated career and employment services staff member, dedicated tutoring services, course enrollment support, an optional study success seminar, and financial support in the form of tuition waivers, free public transportation, and free textbooks. In **Scrivener et al. (2018)**, the intervention is a one-semester remedial program that includes intensive student-centered developmental coursework along with advising, tutoring, and a weekly college skills seminar. In **Sundy (2017)**, the intervention is a comprehensive program that includes developmental classes, supplemental instruction, tutoring,

access to mathematics and writing specialists, career planning, course and major selection supported by individual advising sessions, academic progress monitoring, transfer planning, campus visits to 4-year colleges, workshops, newsletters, social events, and cultural enrichment activities.

The collection of studies demonstrates a medium to large extent of evidence and consistent positive effects. In all eight studies supporting this recommendation, interventions provide comprehensive and integrated advising. Therefore, the expert panel has assigned a *moderate* level of evidence to this recommendation. This rating is supported by the strength of the evidence according to the following criteria:

- **Extent of Evidence.** Each outcome domain average is based on more than one study with a total sample size above 350.
- **Consistency of Effects on Relevant Outcomes.** The average effect sizes for all three of the outcome domains (progressing in college, academic achievement, and postsecondary degree attainment) are positive and statistically significant. However, the average effect sizes for two of the positive outcome domains (progressing in college and academic achievement) are predominantly derived from studies that meet WWC group design standards with reservations.
- **Relationship between the Evidence and Recommendation.** In all eight of the studies used to support Recommendation 1, the advising intervention is comprehensive and integrated.

**Table C.4. Studies providing evidence for Recommendation 1: *Intentionally design and deliver comprehensive, integrated advising that incorporates academic and non-academic supports to empower students to reach their educational goals***

Evidence for Recommendation 1					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<b>Hodara et al. (2017)</b>  <i>QED</i>  <i>Meets WWC group design standards with reservations</i>	1,163 first-year students  <i>Large sample</i>	1 community college in Oregon  <i>Single setting</i>	<u>Future Connect:</u> Future Connect is a comprehensive scholarship and advising program for first-generation and low-income students entering their first year of community college.  Relevant features include scholarships, transportation assistance, as-needed emergency and housing support, summer orientation, a college success coach, two free college and career success courses, transfer support, and optional leadership opportunities.	<u>Business-as-usual:</u> Comparison group students had access to business-as-usual courses and services. Detailed information on the comparison condition was not included in the study.	Progressing in college: $g = 0.80^*$  Academic achievement: $g = 0.38^*$  Postsecondary degree attainment: $g = 0.36^*$

Evidence for Recommendation 1					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Maton et al. (2000)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>155 Science, Engineering, and Mathematics (SEM) students</p> <p><i>Small sample</i></p>	<p>1 public university in Maryland</p> <p><i>Single setting</i></p>	<p><u>Meyerhoff Scholars Program</u>: The program is designed to increase the number of underrepresented minority group members who pursue graduate and professional degrees in science, engineering, and math.</p> <p>Relevant features include financial aid, a summer bridge program, community-building activities, personal advising, counseling, and mentorship, tutoring, and community service.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services. They are in the same SEM courses as the intervention group students.</p>	<p>Academic achievement:</p> <p><math>g = 0.42</math></p>
<p><b>Miller et al. (2020)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,501 low-income students (Pell grant eligible)</p> <p><i>Large sample</i></p>	<p>3 community colleges in Ohio</p> <p><i>Multiple settings</i></p>	<p><u>Accelerated Study in Associate Programs (ASAP)</u>: The Ohio Programs model was designed to closely follow the CUNY ASAP model to address multiple potential barriers to students completing community college within 3 years.</p> <p>Relevant features include comprehensive advising, tutoring, financial support, course enrollment support, full-time enrollment requirement, and holistic support from program staff.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services that were less intensive and individualized than those which the intervention group received.</p>	<p>Progressing in college:</p> <p><math>g = 0.34^*</math></p> <p>Postsecondary degree attainment:</p> <p><math>g = 0.49^*</math></p>

Evidence for Recommendation 1					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Nosaka &amp; Novak (2014)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>3,982 first-year students</p> <p><i>Large sample</i></p>	<p>1 public university in Colorado</p> <p><i>Single setting</i></p>	<p><u>Key Communities</u>: Students participate in a Key learning community that aims to foster a sense of community, academics, leadership, diversity, and service.</p> <p>Relevant features include a 2-day summer orientation, integrated courses and a Key seminar, peer mentoring, early alert system for grade and performance feedback, a shared residence hall, and community-building events.</p>	<p><u>Business-as-usual</u>: Comparison group students did not participate in the program and had access to business-as-usual courses and services. Detailed information on the comparison condition was not included in the study.</p>	<p>Progressing in college: <math>g = 0.22^*</math></p>
<p><b>Patel &amp; Valenzuela (2013)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,028 male Hispanic students, most low-income (Pell grant eligible)</p> <p><i>Large sample</i></p>	<p>1 community college in Arizona</p> <p><i>Single setting</i></p>	<p><u>Adelante Scholarship Program</u>: The Adelante program is a performance-based scholarship program in which students receive scholarships and other support contingent upon academic progress and achievement in college.</p> <p>Relevant features include an orientation, advising, tutoring, academic workshops, and learning activities.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services and financial aid.</p>	<p>Progressing in college: <math>g = 0.17^*</math></p> <p>Academic achievement: <math>g = -0.05</math></p>

Evidence for Recommendation 1					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Scrivener et al. (2015)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>896 students, most first-year, low-income (Pell grant eligible), and in need of developmental education</p> <p><i>Large sample</i></p>	<p>3 City University of New York (CUNY) community college campuses</p> <p><i>Multiple settings</i></p>	<p><u>Accelerated Study in Associate Programs (ASAP)</u>: The ASAP intervention is a 3-year program that provides wraparound supports to students.</p> <p>Relevant features include a full-time enrollment requirement; an ASAP advisor; support from an ASAP career and employment services staff member; ASAP dedicated tutoring services; course enrollment support, including an option for an ASAP study success seminar; and financial support in the form of tuition waivers, free public transportation, and free textbooks.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual courses and services including academic advisors, career services, and tutoring sessions.</p> <p>They were not required to be enrolled full-time.</p>	<p>Progressing in college: <math>g = 0.34^*</math></p> <p>Academic achievement: <math>g = 0.23^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.28^*</math></p>

Evidence for Recommendation 1					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Scrivener et al. (2018)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>3,835 students</p> <p><i>Large sample</i></p>	<p>4 City University of New York (CUNY) community college campuses</p> <p><i>Multiple settings</i></p>	<p><u>CUNY Start</u>: CUNY Start for students assessed as needing remediation. The program's goal is to prepare students for college-level courses while providing all of the developmental education they need in one semester. CUNY Start's math instructional approach is student-centered, rather than lecture-centered, and integrates both reading and writing to allow students to move more quickly through their developmental requirements.</p> <p>Relevant features include intensive developmental coursework (pre-matriculation) following a prescribed approach in math, reading, and writing; advising and tutoring; and a weekly college skills seminar.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services. They could receive standard developmental or college-level courses and services.</p>	<p>Progressing in college: <math>g = -0.74^*</math></p>

Evidence for Recommendation 1					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<b>Sundy (2017)</b>  <i>QED</i>  <i>Meets WWC group design standards with reservations</i>	140 students, most first-generation and low-income (Pell grant eligible)  <i>Small sample</i>	1 community college in Kentucky  <i>Single setting</i>	<u>Student Support Services (SSS)</u> : The SSS intervention is a comprehensive program that offers academic and personal support to students.  Relevant features include developmental classes, supplemental instruction, tutoring, access to mathematics and writing specialists, career planning, course and major selection supported by individual advising sessions, academic progress monitoring, transfer planning, campus visits to 4-year colleges, workshops, newsletters, social events, and cultural enrichment activities.	<u>Business-as-usual</u> : Comparison group students had access to business-as-usual services, including the college's Academic Support Center.	Academic achievement: $g = -0.42^*$

<sup>a</sup> A study with a *small sample* includes fewer than 350 participants. A study with a *large sample* includes 350 or more participants.

<sup>b</sup> Unless otherwise indicated, listed features of the intervention condition were not present in the comparison condition.

\* = statistically significant at the .05 level.

## Recommendation 2: Transform advising to focus on the development of sustained, personalized relationships with individual students throughout their college career.

### Rationale for Recommendation 2 Level of Evidence: *Strong*

WWC staff and the expert panel assigned Recommendation 2 a *strong* level of evidence, based on 10 studies of interventions that involve sustained, personalized advising relationships. Seven of the studies<sup>162</sup> meet WWC group design standards without reservations, and the other three studies<sup>163</sup> meet WWC group design standards with reservations.

Across the 10 studies, there were findings in three outcome domains (**Table C.5**) even though all five outcome domains were relevant for this recommendation. All three domains had statistically significant, positive meta-analytic effect sizes: progressing in college ( $g = 0.30, p < .01$ ), academic achievement ( $g = 0.19, p < .01$ ), and postsecondary degree attainment ( $g = 0.29, p < .01$ ).

**Table C.5. Domain-level effect sizes across the 10 studies supporting Recommendation 2**

Domain	Number of studies	Mean effect size	95% Confidence interval	$p$ Value
Progressing in college	9	<b>0.30</b>	0.28, 0.33	< 0.01
Academic achievement	6	<b>0.19</b>	0.15, 0.23	< 0.01
Postsecondary degree attainment	5	<b>0.29</b>	0.24, 0.34	< 0.01

Note: Significant findings are bolded. ns = nonsignificant findings. All effect sizes were calculated using a fixed effects meta-analytic effect size across studies.

Evidence from the 10 studies provides a direct test of the recommendation, as all interventions involve sustained, personalized advising relationships. In **Bettinger & Baker (2014)**, students were paired with a coach who communicated with students via phone, email, text messages, or social networking sites to help students prioritize their studies, plan for academic success, identify and overcome barriers to academic success, assess students' lives outside of school, and address specific issues highlighted from an algorithm that tracked student performance in their courses. In **Binder et al. (2015)**, intervention students were assigned to one advisor for the duration of the program, and they were given priority to meet with their assigned advisor. In **Hodara et al. (2017)**, the intervention is a comprehensive scholarship and advising program that focuses on building trust between advisors and students during the transition from high school to college; provides one-on-one, individualized advising that accompanies the establishment of a personal relationship with the student; social and emotional support; assistance with financial aid; and scaffolded advising and mentoring aimed at enabling and encouraging students' confidence in independently accessing resources. In **Maton et al. (2000)**, the program includes continual personal advising that spans years with highly accessible program staff. In **Mayer et al. (2019)**, the advising program is enhanced through technology to better support advisees and includes advice about career goals and challenges in school; it provides early warning signs of challenges to advisors to intervene as needed, offer guidance, and refer students to tutoring and other support services. In **Miller et al. (2020)**, the program includes holistic comprehensive advising with small caseloads that provides students with support services and academic support to address barriers to student success. In **Nosaka & Novak (2014)**, students work with program-specific advisors, mentors, coordinators, and faculty who connect students to



opportunities and campus resources, coordinate program activities, teach a seminar, and provide feedback on student performance. In **Patel & Valenzuela (2013)**, advisors are assigned to students to provide support throughout all program semesters; they act as a consistent support system for students, providing guidance for academic success, intervening if a student is falling behind, and developing meaningful relationships with students to facilitate both academic and non-academic support. In **Scrivener & Weiss (2009)**, students are assigned to a dedicated counselor with a small caseload and required to meet frequently to discuss and monitor academic progress and help resolve any issues acting as barriers to success. In **Scrivener et al. (2015)**, dedicated program advisors with low student-to-advisor ratios are assigned to students and meet frequently.

The collection of studies demonstrates a medium to large extent of evidence and consistent positive effects. In all of the studies supporting this recommendation, advising relationships are sustained and personalized. Therefore, the expert panel has assigned a *strong* level of evidence to this recommendation. This rating is supported by the strength of the evidence according to the following criteria:

- **Extent of Evidence.** Each outcome domain average is based on more than one study with a total sample size above 350.
- **Consistency of Effects on Relevant Outcomes.** The average effect sizes for all three of the outcome domains (progressing in college, academic achievement, and postsecondary degree attainment) are positive and statistically significant and are predominantly derived from studies that meet WWC group design standards without reservations.
- **Relationship between the Evidence and Recommendation.** In all of the studies used to support Recommendation 2, advising relationships are sustained and personalized.

**Table C.6. Studies providing evidence for Recommendation 2: *Transform advising to focus on the development of sustained, personalized relationships with individual students throughout their college career***

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Bettinger &amp; Baker (2014)</b></p> <p><i>Cluster RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>13,555 students</p> <p><i>Large sample</i></p>	<p>8 universities including two- and 4-year schools, public, private not-for-profit, and proprietary colleges</p> <p><i>Multiple settings</i></p>	<p><u>InsideTrack Coach:</u> Students in the intervention condition were paired to a trained InsideTrack coach over two semesters, who worked to help students prioritize their studies, plan for academic success, identify and overcome barriers to academic success, and assess students' lives outside of school. Each coach communicated with his or her students via phone, email, text messages, or social networking sites. In addition to regular contacts, coaches sometimes had access to course information and student performance in their specific courses, which contributed to an algorithm that direct coaches to specific issues that need to be addressed and when.</p>	<p><u>Business-as-usual:</u> Comparison group students had access to business-as-usual support services at their universities and did not receive individualized coaching.</p>	<p>Progressing in college: <math>g = 0.13^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.11^*</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Binder et al. (2015)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,081 students</p> <p><i>Large sample</i></p>	<p>1 public university in New Mexico</p> <p><i>Single setting</i></p>	<p><u>Vision Inspired Scholarship through Academic Achievement (VISTA)</u>: The VISTA scholarship program provided students with up to \$4,000 over four semesters. Scholarship payments were tied to academic milestones including credit hours, GPA, and meeting with an advisor.</p> <p>Relevant to this recommendation, VISTA students were assigned to one advisor for the duration of the program, and they were given priority to meet with their assigned advisor. With more consistent and frequent meetings, advisors were more likely to get to know their VISTA advisees and provide referrals for the non-academic aspects of their advisees' lives.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual financial aid and other services. This included the potential to receive the state's scholarship, which paid tuition at any public college in the state, as long as students maintained a 2.5 cumulative GPA and earned at least 12 credit hours in each prior semester.</p> <p>The majority of students in the study sample received the state scholarship during the same time that VISTA was offered.</p> <p>Comparison group students could request to see a particular advisor, but they typically saw whichever advisor was available.</p>	<p>Progressing in college: <math>g = 0.33^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.12</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Hodara et al. (2017)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>1,163 first-year students</p> <p><i>Large sample</i></p>	<p>1 community college in Oregon</p> <p><i>Single setting</i></p>	<p><u>Future Connect</u>: Future Connect is a comprehensive scholarship and advising program for first-generation and low-income students entering their first year of community college.</p> <p>Relevant features include building trust with the students during the transition from high school to college, providing one-on-one, individualized advising that accompanies the establishment of a personal relationship with the student, early support, social and emotional support, assistance with financial aid, and scaffolded advising and mentoring aimed at enabling and encouraging students' confidence in independently accessing resources.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual courses and services. Detailed information on the comparison condition was not included in the study.</p>	<p>Progressing in college: <math>g = 0.80^*</math></p> <p>Academic achievement: <math>g = 0.38^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.36^*</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Maton et al. (2000)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>155 Science, Engineering, and Mathematics (SEM) students</p> <p><i>Small sample</i></p>	<p>1 public university in Maryland</p> <p><i>Single setting</i></p>	<p><u>Meyerhoff Scholars Program</u>: The program is designed to increase the number of underrepresented minority group members who pursue graduate and professional degrees in science, engineering, and math.</p> <p>Features include financial aid, a summer bridge program, community-building activities, shared residence hall, personal advising, counseling, mentorship, and tutoring, and community service.</p> <p>Relevant to this recommendation, advisors work with students for years after connecting at the Summer Bridge program. Program staff are highly accessible and involved in student life. Contact between program students and staff is continual and includes large “family” meetings.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services. They are in the same SEM courses as the intervention group students.</p>	<p>Academic achievement: <math>g = 0.42</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Mayer et al. (2019)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC standards without reservations</i></p>	<p>8,011 students</p> <p><i>Large sample</i></p>	<p>1 public university in California, 1 public university in North Carolina, and 1 community college in Pennsylvania</p> <p><i>Multiple settings</i></p>	<p><u>Enhanced Integrated Planning and Advising for Student Success (iPASS)</u>: iPASS uses technology to enhance the quantity of advising that students receive in college. Relevant features include advice about career goals and challenges in school; provides early warning signs of challenges to advisors to intervene as needed.</p> <p>Enhanced iPASS provides a toolbox for advisors to follow up with students as they progress, offer guidance, and refer students to tutoring and other support services. The enhanced version also improved on an early alert system with more precise data and earlier flagging of students in their first semester.</p> <p>The program required students to meet with advisors at least once. One of the three sites included a peer mentoring component.</p> <p>Each of the three institutions implemented iPASS slightly differently.</p>	<p><u>Unenhanced iPASS</u>: Comparison group students participated in “unenhanced iPASS” in which they also received early alerts and more advising.</p> <p>The “unenhanced” iPASS program was less well integrated, not applied as consistently, and included fewer components.</p>	<p>Progressing in college: <math>g = 0.02</math></p> <p>Academic achievement: <math>g = 0.01</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Miller et al. (2020)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,501 low-income students (Pell grant eligible)</p> <p><i>Large sample</i></p>	<p>3 community colleges in Ohio</p> <p><i>Multiple settings</i></p>	<p><u>Accelerated Study in Associate Programs (ASAP)</u>: The Ohio Programs model was designed to closely follow the CUNY ASAP model to address multiple potential barriers to students completing community college within 3 years.</p> <p>The comprehensive model consists of the following features: comprehensive advising, tutoring, financial support, course enrollment support, full-time enrollment requirement, and holistic support from program staff.</p> <p>Relevant to this recommendation, program advisors have smaller, more manageable caseloads and provide students with support services and academic support to address barriers to student success.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services that were less intensive and individualized than those which the intervention group received.</p>	<p>Progressing in college: <math>g = 0.34^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.49^*</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Nosaka &amp; Novak (2014)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>3,982 first-year students</p> <p><i>Large sample</i></p>	<p>1 public university in Colorado</p> <p><i>Single setting</i></p>	<p><u>Key Communities:</u> Students are clustered in residential learning communities that aim to foster a sense of community, academics, leadership, diversity, and service.</p> <p>Relevant to this recommendation, designated advisors work with small clusters of students and students work with undergraduate Key mentors who are supervised and supported by Key coordinators and Key seminar faculty.</p>	<p><u>Business-as-usual:</u> Comparison group students did not participate in the program and had access to business-as-usual courses and services. Detailed information on the comparison condition was not included in the study.</p>	<p>Progressing in college: <math>g = 0.22^*</math></p>



Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Patel &amp; Valenzuela (2013)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,028 male Hispanic students, most low-income (Pell grant eligible)</p> <p><i>Large sample</i></p>	<p>1 community college in Arizona</p> <p><i>Single setting</i></p>	<p><u>Adelante Scholarship Program</u>: The Adelante program is a performance-based scholarship program in which students receive scholarships and other support contingent upon academic progress and achievement in college. Features of the program include an orientation, advising, tutoring, academic workshops, and learning activities.</p> <p>Relevant to this recommendation, beginning in the first semester, students are assigned an advisor to provide support throughout all three program semesters. This dedicated advisor acts as a consistent support system for students as they navigate various college systems, provides guidance for academic success, and intervenes if a student is falling behind.</p> <p>This dependable connection with an advisor allows for the development of a meaningful relationship between student and advisor that facilitates non-academic support and discussions around health, work, and family life.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services and financial aid.</p>	<p>Progressing in college: <math>g = 0.17^*</math></p> <p>Academic achievement: <math>g = -0.05</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Scrivener &amp; Weiss (2009)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>2,139 students</p> <p><i>Large sample</i></p>	<p>2 community colleges in Ohio</p> <p><i>Multiple settings</i></p>	<p><u>Opening Doors</u>: Features of the Opening Doors program included assignment to a dedicated counselor with a small caseload, a scholarship, study groups, social events, tutoring, and an orientation course.</p> <p>Relevant to this recommendation, students met with their counselor frequently to discuss and monitor academic progress and help resolve any issues acting as a barrier to success.</p> <p>Stipends were contingent on these meetings with counselors as well as enrollment and maintaining good academic standing.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual counseling.</p> <p>The ratio of students to available counselors across the colleges for the comparison group was 1,000:1, about 12 times the ratio for the first community college intervention group and 6 times the ratio for the second community college intervention group.</p>	<p>Progressing in college: <math>g = 0.09^*</math></p> <p>Academic achievement: <math>g = 0.08</math></p>

Evidence for Recommendation 2					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Scrivener et al. (2015)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>896 students, most first-year, low-income (Pell grant eligible), and in need of developmental education</p> <p><i>Large sample</i></p>	<p>3 City University of New York (CUNY) community college campuses</p> <p><i>Multiple settings</i></p>	<p><u>Accelerated Study in Associate Programs (ASAP)</u>: The ASAP intervention is a 3-year program that provides wraparound supports to students. Features include a full-time enrollment requirement; an ASAP advisor; support from an ASAP career and employment services staff member; ASAP dedicated tutoring services; course enrollment support, including an option for an ASAP study success seminar; and financial support in the form of tuition waivers, free public transportation, and free textbooks.</p> <p>Relevant to this recommendation, ASAP has low student-to-advisor ratios and students meet with their advisor frequently. The ASAP advisors solely serve ASAP students.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual courses and services including academic advisors, career services, and tutoring sessions. They were not required to be enrolled full-time.</p>	<p>Progressing in college: <math>g = 0.34^*</math></p> <p>Academic achievement: <math>g = 0.23^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.28^*</math></p>

<sup>a</sup> A study with a *small sample* includes fewer than 350 participants. A study with a *large sample* includes 350 or more participants.

<sup>b</sup> Unless otherwise indicated, listed features of the intervention condition were not present in the comparison condition.

\* = statistically significant at the .05 level.

### Recommendation 3: Use mentoring and coaching to enhance comprehensive, integrated advising in ways that support students' achievement and progression.

#### Rationale for Recommendation 3 Level of Evidence: *Strong*

WWC staff and the expert panel assigned Recommendation 3 a *strong* level of evidence, based on 12 studies of interventions that include mentoring. Eight of the studies<sup>164</sup> meet WWC group design standards without reservations, and the other four studies<sup>165</sup> meet WWC group design standards with reservations.

Across the 12 studies, there were findings in three outcome domains (**Table C.7**) even though all five outcome domains were relevant for this recommendation. All three domains had statistically significant, positive meta-analytic effect sizes: progressing in college ( $g = 0.14$ ,  $p < .01$ ), academic achievement ( $g = 0.10$ ,  $p < .01$ ), and postsecondary degree attainment ( $g = 0.11$ ,  $p < .05$ ).

**Table C.7. Domain-level effect sizes across the 12 studies supporting Recommendation 3**

Domain	Number of studies	Mean effect size	95% Confidence interval	$p$ Value
Progressing in college	7	<b>0.14</b>	0.11, 0.18	< 0.01
Academic achievement	8	<b>0.10</b>	0.05, 0.15	< 0.01
Postsecondary degree attainment	1	<b>0.11</b>	0.00, 0.22	< 0.05

Note: Significant findings are bolded. ns = nonsignificant findings. All effect sizes were calculated using a fixed effects meta-analytic effect size across studies, except for the postsecondary degree attainment domain. This domain had findings from just one study; the effect size and  $p$ -value presented here are the domain-level average effect size and  $p$ -value for the individual relevant study.

Evidence from the 12 studies provides a direct test of the recommendation, as mentoring or coaching is a primary component of the intervention in eight studies and is a secondary component of the intervention in four studies. In **Bettinger & Baker (2014)**, students were paired with a coach who communicated with students via phone, email, text messages, or social networking to help students prioritize their studies, plan for academic success, identify and overcome barriers to academic success, assess students' lives outside of school, and address specific issues highlighted from an algorithm that tracked student course performance. In **Campbell & Campbell (2007)**, program participants were matched with volunteer faculty mentors for 1 year based on their shared academic interests and were also offered several workshops through the mentoring office. In **Dennehy & Dasgupta (2017)**, participants were paired with a female or male peer mentor who was an advanced engineering student and met in person for at least an hour about once a month over the course of the academic year. In **Kim et al. (2013)**, students were mentored by graduate-level registered nurses at the same university either in person or through telephone calls, emails, text messages, or Facebook interactions that aimed at providing emotional support and helping socialize the mentees into the nursing profession. In **Lavallais (2017)**, students had access to individual 1.5-hour monthly coaching sessions that covered topics including academic and personal growth, internship/career readiness, campus engagement, counsel on personal matters, and assistance with any life challenges hindering the student's focus. In **Maton et al. (2000)**, science and engineering students were paired with mentors who are professionals in a science, engineering, or mathematics occupation. In **Mayer et al. (2019)**, one of

the three sites of the program involved peer mentoring as part of a technology-enhanced advising model. In **Medina (2016)**, as part of a pre-college enrollment program, students met one-on-one with their peer mentor for 20-30 minutes at least once a week during the 5-week program. In **Nosaka & Novak (2014)**, students participating in a learning community had access to peer mentoring. In **Oreopoulos & Petronijevic (2018)**, one of the two intervention groups involves pairing students with an upper-year undergraduate student who serves as their personal coach and is available via phone, online, or in person to answer questions and to discuss campus services, selecting a major, academic coursework, getting jobs on campus, their feelings (nervousness, anxiety, sadness), and how to book appointments with counselors. In **Servies (1999)**, students were assigned peer mentors to meet with once a week throughout a semester in which the sessions covered topics ranging from orientation to campus, how to schedule classes, and career research that accompanied joint activities such as attending a social event on campus, lunch, movies/games on campus, jointly meeting with faculty and staff members, introducing students to a club or organization, and helping to arrange tutoring sessions when needed. In **Thomas (2005)**, the intervention was an ethnic-based mentoring model over the course of the academic year in which junior and senior students who identified as Black spent an hour once a week mentoring incoming first-year students who also identified as Black.

The collection of studies demonstrates a medium to large extent of evidence and consistent positive effects. In a preponderance of the studies supporting this recommendation, mentoring or coaching is a major component of the tested intervention. Therefore, the expert panel has assigned a *strong* level of evidence to this recommendation. This rating is supported by the strength of the evidence according to the following criteria:

- **Extent of Evidence.** Two of the three outcome domain averages are based on more than one study with a total sample size above 350.
- **Consistency of Effects on Relevant Outcomes.** The average effect sizes for all three of the outcome domains (progressing in college, academic achievement, and postsecondary degree attainment) are positive and statistically significant and are predominantly derived from studies that meet WWC group design standards without reservations.
- **Relationship between the Evidence and Recommendation.** In eight of the 12 studies used to support Recommendation 3, mentoring or coaching is a major component of the tested intervention.

**Table C.8. Studies providing evidence for Recommendation 3: Use mentoring and coaching to enhance comprehensive, integrated advising in ways that support students' achievement and progression**

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Bettinger &amp; Baker (2014)</b></p> <p><i>Cluster RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>13,555 students</p> <p><i>Large sample</i></p>	<p>8 universities including 2- and 4-year schools, public, private not-for-profit, and proprietary colleges</p> <p><i>Multiple settings</i></p>	<p><u>InsideTrack coach</u>: Students in the intervention condition were paired to a trained InsideTrack coach over two semesters who worked to help students prioritize their studies, plan for academic success, identify and overcome barriers to academic success, and assess their lives outside of school.</p> <p>Each coach communicated with his or her students via phone, email, text messages, or social networking sites.</p> <p>In addition to regular contacts, coaches sometimes had access to course information and student performance in their specific courses, which contributed to an algorithm that directs coaches to specific issues that need to be addressed and when.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual support services at their universities and did not receive individualized coaching.</p>	<p>Progressing in college: <math>g = 0.13^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.11^*</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Campbell &amp; Campbell (2007)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>678 transfer or incoming first-year students (53% transfer students; 47% incoming first-year)</p> <p>Target population was students from racial/ethnic groups underrepresented at the university (primarily Hispanic/Latino and Black/African American)</p> <p><i>Large sample</i></p>	<p>1 university in California</p> <p><i>Single setting</i></p>	<p><u>Faculty Mentoring Program</u>: For 1 year, participants were matched with volunteer faculty mentors after classes began, based on their shared academic interests. Mentors were asked to meet with their students a minimum of three times during the semester, including an initial meeting to discuss goals and expectations. Each mentor was allowed up to \$150 per year for incidentals for each student mentored and an associated small grant program to support research-related activities.</p> <p>A mentoring office sponsored several workshops (with catered meals) for the mentors and their students, and numerous small tokens of recognition were distributed (coffee mugs, pens, etc.).</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services at the university and did not receive faculty mentoring through the program.</p>	<p>Academic achievement: <math>g = 0.12</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Dennehy &amp; Dasgupta (2017)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>150 female college students entering an engineering major were randomized to a female peer mentor (52), male peer mentor (51) or no mentor (47)</p> <p><i>Small sample</i></p>	<p>1 public 4-year university in Massachusetts</p> <p><i>Single setting</i></p>	<p><u>Peer Mentoring Program:</u> Participants were paired with a female or male peer mentor who was an advanced engineering student. Participants and their mentors met in person for at least an hour about once a month over the course of the academic year.</p> <p>Mentors were matched with one to three students and kept track of their interactions using monthly online surveys. Mentors were all junior or seniors and had declared majors in one of the four engineering departments.</p>	<p><u>Business-as-usual:</u> Comparison group students had access to business-as-usual services at the university in which students did not have a peer mentor.</p>	<p>Academic achievement: <math>g = 0.02</math></p>



Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Kim et al. (2013)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>76 nursing students</p> <p><i>Small sample</i></p>	<p>1 private 4 year university in California</p> <p><i>Single setting</i></p>	<p><u>Mentoring Program:</u> The students assigned to the experimental group received up to 20 hours of mentoring by registered nurses who were in a graduate nursing program at the same university as well as e-mentoring. E-mentoring included telephone calls, emails, text messages, or Facebook interactions.</p> <p>The mentors were instructed to provide emotional support, help socialize mentees into the nursing profession, and serve as role models. They were not allowed to do any tutoring or help with class assignments.</p> <p>The mentoring program included a 2-hour mentorship training session.</p>	<p><u>Business-as-usual:</u> Comparison group students did not receive mentoring.</p>	<p>Academic achievement: <math>g = 0.41</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Lavallais (2017)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>100 at-risk students (all male and self-identified as Black/African American)</p> <p><i>Small sample</i></p>	<p>1 public 4-year university in Tennessee</p> <p><i>Single setting</i></p>	<p><u>Mentoring &amp; Coaching:</u> Program offered individual coaching sessions in extension of three 2-hour workshops. The three workshops were offered for students in both the intervention and comparison group. The workshops followed The Perception of Achievement Curriculum, focusing on academic challenges, academic goal-setting, university engagement and campus involvement, study habits, and internship/career exposure opportunities.</p> <p>In extension, intervention group students were offered individual 1.5-hour monthly coaching sessions for the remainder of the academic year. The coaching sessions covered a broad range of topics, including academic and personal growth, internship/career readiness, campus engagement, counsel on personal matters, and assistance with any life challenges hindering the student's focus.</p>	<p><u>Business-as-usual:</u> Comparison group students participated in the workshops and had access to business-as-usual student support services but did not receive the monthly coaching sessions.</p>	<p>Academic achievement: <math>g = 0.84^*</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Maton et al. (2000)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>155 Science, Engineering, and Mathematics (SEM) students</p> <p><i>Small sample</i></p>	<p>1 public university in Maryland</p> <p><i>Single setting</i></p>	<p><u>Meyerhoff Scholars Program</u>: The program is designed to increase the number of underrepresented minority group members who pursue graduate and professional degrees in science, engineering, and math.</p> <p>Relevant features include financial aid, a summer bridge program, community-building activities, personal advising, counseling, and mentorship, tutoring, and community service.</p> <p>Relevant to this recommendation, the mentors each student is paired with are professionals in a SEM occupation.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services. They are in the same SEM courses as the intervention group students.</p>	<p>Academic achievement:</p> <p><math>g = 0.42</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Mayer et al. (2019)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>8,011 students</p> <p><i>Large sample</i></p>	<p>1 public university in California, 1 public university in North Carolina, and 1 community college in Pennsylvania</p> <p><i>Multiple settings</i></p>	<p><u>Enhanced Integrated Planning and Advising for Student Success (iPASS)</u>: Enhanced iPASS provides a toolbox for advisors to follow up with students as they progress, offer guidance, and refer students to tutoring and other support services. The enhanced version also improved on an early alert system with more precise data and earlier flagging of students in their first semester.</p> <p>The program required students to meet with advisors at least once. Each of the three institutions implemented iPASS slightly differently.</p> <p>Relevant to this recommendation, one of the three sites included a peer mentoring component.</p>	<p><u>Unenhanced iPASS</u>: Comparison group students participated in “unenhanced iPASS” in which they also received early alerts and more advising.</p> <p>The “unenhanced” iPASS program was less well integrated, not applied as consistently, and included fewer components.</p>	<p>Progressing in college: <math>g = 0.02</math></p> <p>Academic achievement: <math>g = 0.01</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Medina (2016)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>7,770 first-year students</p> <p><i>Large sample</i></p>	<p>1 public university in the southeastern United States</p> <p><i>Single setting</i></p>	<p><u>Summer Bridge Program</u>: The summer bridge program (SBP) is a 5-week pre-college enrollment program designed to help first-year students transition from high school to college. Students live on campus and participate in interactive events and up to 8 credit hours of academic coursework. SBP includes an orientation session, peer mentoring, wellness activities, tutoring, career counseling, and physical and mental health services.</p> <p>Relevant to this recommendation, students meet one-on-one with their mentor for 20-30 minutes at least once a week during the program.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual courses and services.</p> <p>The comparison group chose not to participate in the SBP and were matched to the intervention group on demographics, academic preparation, financial aid, college academics, and college interests and intentions.</p>	<p>Progressing in college: <math>g = 0.13^*</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Nosaka &amp; Novak (2014)</b></p> <p><i>QED</i></p> <p><i>Meets WWC group design standards with reservations</i></p>	<p>3,982 first-year students</p> <p><i>Large sample</i></p>	<p>1 public university in Colorado</p> <p><i>Single setting</i></p>	<p><u>Key Communities:</u> Students participate in a Key learning community that aims to foster a sense of community, academics, leadership, diversity, and service.</p> <p>Features include a 2-day summer orientation, integrated courses and a Key seminar, peer mentoring, early alert system for grade and performance feedback, a shared residence hall, and community-building event.</p> <p>Relevant to this recommendation, the program also included peer mentoring.</p>	<p><u>Business-as-usual:</u> Comparison group students did not participate in the program and had access to business-as-usual courses and services. Detailed information on the comparison condition was not included in the study.</p>	<p>Progressing in college: <math>g = 0.22^*</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Oreopoulos &amp; Petronijevic (2018)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>2,990 first-year students</p> <p><i>Large sample</i></p>	<p>1 university (3 campuses) in Ontario, Canada</p> <p><i>Multiple settings</i></p>	<p>There were two interventions implemented in the study. They shared the same core component, which was an online, 2.5-hour goal-setting exercise that students completed in the first 2 weeks of the first semester.</p> <p><u>(1) Online Goal-Setting and Coaching:</u> Students were assigned to an upper-year undergraduate student who served as their personal coach and was available to meet with students to answer any questions (via phone, online, or in person). Coaches sent students regular text and email messages of advice, encouragement, and motivation.</p> <p>Topics discussed in their meetings included location of campus services, how to select a major, questions about their academic coursework, getting jobs on campus, their feelings (nervousness, anxiety, sadness) and how to book appointments with counselors.</p>	<p><u>Online Goal-Setting Only:</u> Like students in both interventions, comparison group students completed the online goal-setting exercise.</p> <p>Throughout the rest of the academic year, students had access to business-as-usual services and resources.</p>	<p>Progressing in college: <math>g = 0.15^*</math></p> <p>Academic achievement: <math>g = 0.12^*</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Oreopoulos &amp; Petronijevic (2018) (continued)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>2,990 first-year students</p> <p><i>Large sample</i></p>	<p>1 university (3 campuses) in Ontario, Canada</p> <p><i>Multiple settings</i></p>	<p><u>(2) Online Goal-Setting and Text Messaging:</u> Students were assigned to receive email and text messages at a frequency that they choose (once a week, 2-3 times per week, or 3 or more times per week). They all received email messages, but if they provided their phone number, they received both email and text messages (the same messages).</p> <p>Messages were focused on academic and study preparation advice, information on university resources, and motivation and encouragement. The aim of these messages was to provide “nudges” to students.</p> <p>The messages allowed for two-way communication, and students were encouraged either to respond to messages or to initiate contact with their coach about a topic of their choice.</p>	<p><u>Online Goal-Setting Only:</u> Like students in both interventions, comparison group students completed the online goal-setting exercise.</p> <p>Throughout the rest of the academic year, students had access to business-as-usual services and resources.</p>	<p>Progressing in college: <math>g = 0.15^*</math></p> <p>Academic achievement: <math>g = 0.12^*</math></p>



Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Servies (1999)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>60 low-income (Perkins grant eligible) 2-year technology majors</p> <p><i>Small sample</i></p>	<p>1 public university in Indiana</p> <p><i>Single setting</i></p>	<p><u>Mentoring Program:</u> Students were assigned peer mentors who were academically successful upper-level students at the college. Students met with their mentor once a week throughout the semester, starting before the first day of class. The initial conversation oriented them to campus and their scheduled classes.</p> <p>Each meeting afterwards included one of a large number of suggested activities: introducing the students to a club or organization, attending a social event on campus, other joint social activities including lunch, movies/games on campus or exercising together, looking into career testing and career research, having lunch together, studying together, or jointly meeting with faculty and staff members. In addition to the 1 hour of required mentoring, the mentor/tutors were to conduct or arrange for tutoring sessions when needed.</p>	<p><u>Business-as-usual:</u> Comparison group students experienced business-as-usual services and had access to the various supports offered by the university but did not have direction or guidance from upper-level peers to use these supports.</p>	<p>Progressing in college: <math>g = 0.00</math></p>

Evidence for Recommendation 3					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<b>Thomas (2005)</b>  <i>RCT</i>  <i>Meets WWC group design standards without reservations</i>	980 first-year Black students  <i>Small sample</i>	1 public university in Michigan  <i>Single setting</i>	<u>African American Student Mentoring Program (AASMP)</u> : The intervention was an ethnic-based mentoring model, developed and run by students at the university. Juniors and seniors who identified as Black mentored incoming first-year students who also identified as Black. Mentors met with their mentees once a week for an hour over the academic year. Mentors were assigned two or three mentees each.  Mentors also participated in a year-long training program and small group supervision meetings that met for 2 hours every other week over the year. Supervision allowed mentors to discuss their experiences and receive guidance and troubleshooting as needed.	<u>Phone or email check-ins</u> : Comparison group members were contacted once every 3 weeks by phone or email. They were asked how they were doing in college, but were not actively mentored.  Comparison group members were offered a mentor for the final month of their first year.	Progressing in college: $g = -0.03$  Academic achievement: $g = 0.12$

<sup>a</sup> A study with a *small sample* includes fewer than 350 participants. A study with a *large sample* includes 350 or more participants.

<sup>b</sup> Unless otherwise indicated, listed features of the intervention condition were not present in the comparison condition.

\* = statistically significant at the .05 level.

## Recommendation 4: Embed positive incentives in intentionally designed advising structures to encourage student participation and continued engagement.

### Rationale for Recommendation 4 Level of Evidence: *Strong*

WWC staff and the expert panel assigned Recommendation 4 a *strong* level of evidence, based on six studies of interventions that include embedded incentives. All six studies<sup>166</sup> meet WWC group design standards without reservations.

Across the six studies, there were findings in three outcome domains (**Table C.9**) even though all five outcome domains were relevant for this recommendation. All three domains had statistically significant, positive meta-analytic effect sizes: progressing in college ( $g = 0.23$ ,  $p < .01$ ), academic achievement ( $g = 0.13$ ,  $p < .01$ ), and postsecondary degree attainment ( $g = 0.32$ ,  $p < .01$ ).

**Table C.9. Domain-level effect sizes across the six studies supporting Recommendation 4**

Domain	Number of studies	Mean effect size	95% Confidence interval	<i>p</i> Value
Progressing in college	6	<b>0.23</b>	0.19, 0.28	< 0.01
Academic achievement	4	<b>0.13</b>	0.07, 0.18	< 0.01
Postsecondary degree attainment	3	<b>0.32</b>	0.25, 0.39	< 0.01

Note: Significant findings are bolded. ns = nonsignificant findings. All effect sizes were calculated using a fixed effects meta-analytic effect size across studies.

Evidence from the six studies provides a direct test of the recommendation, as incentives are a primary component of the intervention in four studies and are a secondary component of the intervention in two studies. In **Binder et al. (2015)**, the scholarship program issued payments tied to academic milestones including credit hours, GPA, and mandatory advising. In **Brock & Richburg-Hayes (2006)**, students were assigned counselors with smaller caseloads who monitored their academic performance and disbursed scholarships contingent on enrollment and academic standing. In **Miller et al. (2020)**, program students were eligible to receive a \$50 incentive every month contingent on participation in advising, tutoring, and career services. In **Patel & Valenzuela (2013)**, the intervention is a performance-based scholarship program in which students receive scholarships and other support contingent upon academic progress and achievement in college. In **Scrivener & Weiss (2009)**, scholarship stipends were contingent on enrollment, maintaining good academic standing, and meetings with a dedicated counselor who monitors academic progress and helps resolve any issues acting as a barrier to success. In **Scrivener et al. (2015)**, as part of a program that provides wraparound supports to students, attendance at advising appointments was linked to students' receipt of monthly MetroCards (public transit passes).

The collection of studies demonstrates a medium to large extent of evidence and consistent positive effects. In a preponderance of the studies supporting this recommendation, incentives are a major component of the tested intervention. Therefore, the expert panel has assigned a *strong* level of evidence to this recommendation. This rating is supported by the strength of the evidence according to the following criteria:

- **Extent of Evidence.** Each outcome domain average is based on more than one study with a total sample size above 350.
- **Consistency of Effects on Relevant Outcomes.** The average effect sizes for all three of the outcome domains (progressing in college, academic achievement, and postsecondary degree attainment) are positive and statistically significant and are predominantly derived from studies that meet WWC group design standards without reservations.
- **Relationship between the Evidence and Recommendation.** In four of the six studies used to support Recommendation 4, incentives are a major component of the tested intervention.

**Table C.10. Studies providing evidence for Recommendation 4: *Embed positive incentives in intentionally designed advising structures to encourage student participation and continued engagement***

Evidence for Recommendation 4					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<b>Binder et al. (2015)</b>  <i>RCT</i>  <i>Meets WWC group design standards without reservations</i>	1,081 students  <i>Large sample</i>	1 public university in New Mexico  <i>Single setting</i>	<u>Vision Inspired Scholarship through Academic Achievement (VISTA)</u> : The VISTA scholarship program provided students with up to \$4,000 over four semesters. Scholarship payments were tied to academic milestones including credit hours, GPA, and meeting with an advisor.  Advising was mandatory and part of the model that theorized that enhanced advising combined with financial aid and incentives to take more course credits and increase credit accumulation would improve student progress toward earning a timely degree.	<u>Business-as-usual</u> : The comparison group had access to business-as-usual financial aid and other services. This included the potential to receive the state's scholarship, which paid tuition at any public college in the state, as long as students maintained a 2.5 cumulative GPA and earned at least 12 credit hours in each prior semester. The majority of students in the study sample received the state scholarship during the same time that VISTA was offered.	Progressing in college: $g = 0.33^*$  Postsecondary degree attainment: $g = 0.12$

Evidence for Recommendation 4					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Brock &amp; Richburg-Hayes (2006)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,019 students, majority live in household receiving government benefits</p> <p><i>Large sample</i></p>	<p>2 community colleges in Louisiana</p> <p><i>Multiple settings</i></p>	<p><u>Opening Doors:</u> Opening Doors (OD) students were assigned counselors with smaller caseloads who monitored their academic performance and disbursed scholarships contingent on enrollment and academic standing.</p> <p>For summer sessions, payments were divided into two \$250 payments. Importantly, students could enroll for a second semester and receive a second \$1000, for a maximum of \$2000 and could take a break from school and still be eligible to get the scholarship if they returned and enrolled at least half-time. In addition to monitoring students' performance, counselors were supposed to help students resolve problems that impinged on their academic performance.</p> <p>In order to maintain eligibility for the scholarship, students had to enroll at least half-time (6+ credits), for which they received \$250, earn at least a C average by mid-term (another \$250), pass their courses, and maintain a GPA of at least 2.0 to receive the final \$500.</p>	<p><u>Business-as-usual:</u> The comparison group had access to business-as-usual services, including access to regular counselors with a higher caseload.</p>	<p>Progressing in college: <math>g = 0.23</math></p> <p>Academic achievement: <math>g = 0.31</math></p>

Evidence for Recommendation 4					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Miller et al. (2020)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,501 low-income students (Pell grant eligible)</p> <p><i>Large sample</i></p>	<p>3 community colleges in Ohio</p> <p><i>Multiple settings</i></p>	<p><u>Accelerated Study in Associate Programs (ASAP)</u>: The Ohio Programs model was designed to closely follow the CUNY ASAP model to address multiple potential barriers to students completing community college within 3 years. The comprehensive model consists of the following features: comprehensive advising, tutoring, financial support, course enrollment support, full-time enrollment requirement, and holistic support from program staff.</p> <p>Relevant to this recommendation, ASAP students were eligible to receive a \$50 incentive every month contingent on participation in advising, tutoring, and career services. Other encouragements for participation included requirements, “sticks” (removal of financial support, holds on registration), and messaging.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services that were less intensive and individualized than those which the intervention group received.</p>	<p>Progressing in college: <i>g</i> = 0.34*</p> <p>Postsecondary degree attainment: <i>g</i> = 0.49*</p>

Evidence for Recommendation 4					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Patel &amp; Valenzuela (2013)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>1,028 male Hispanic students, majority low-income (Pell grant eligible)</p> <p><i>Large sample</i></p>	<p>1 community college in Arizona</p> <p><i>Single setting</i></p>	<p><u>Adelante Scholarship Program</u>: The Adelante program is a performance-based scholarship program in which students receive scholarships and other support contingent upon academic progress and achievement in college. Program students were eligible for awards up to \$1,500 per semester for three semesters. Features of the program include an orientation, advising, tutoring, academic workshops, and learning activities.</p>	<p><u>Business-as-usual</u>: Comparison group students had access to business-as-usual services and financial aid.</p>	<p>Progressing in college: <math>g = 0.17^*</math></p> <p>Academic achievement: <math>g = -0.05</math></p>
<p><b>Scrivener &amp; Weiss (2009)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>2,139 students</p> <p><i>Large sample</i></p>	<p>2 community colleges in Ohio</p> <p><i>Multiple settings</i></p>	<p><u>Opening Doors</u>: Features of the Opening Doors program included assignment to a dedicated counselor with a small caseload, a scholarship, study groups, social events, tutoring, and an orientation course.</p> <p>Students met with their counselor frequently to discuss and monitor academic progress and help resolve any issues acting as a barrier to success. Relevant to this recommendation, stipends were contingent on these meetings with counselors as well as enrollment and maintaining good academic standing.</p>	<p><u>Business-as-usual</u>: The comparison group had access to business-as-usual counseling.</p> <p>The ratio of students to available counselors across the colleges for the comparison group was 1000:1, about 12 times the ratio for one community college intervention group and 6 times the ratio compared to the second community college intervention group.</p>	<p>Progressing in college: <math>g = 0.09^*</math></p> <p>Academic achievement: <math>g = 0.08</math></p>

Evidence for Recommendation 4					
Study	Participants <sup>a</sup>	Setting	Intervention Condition <sup>b</sup>	Comparison Condition	Outcome Domain and WWC Calculated Effect Size
<p><b>Scrivener et al. (2015)</b></p> <p><i>RCT</i></p> <p><i>Meets WWC group design standards without reservations</i></p>	<p>896 students, majority first-year, low-income (Pell grant eligible), and in need of developmental education</p> <p><i>Large sample</i></p>	<p>3 City University of New York (CUNY) community college campuses</p> <p><i>Multiple settings</i></p>	<p><u>Accelerated Study in Associate Programs (ASAP)</u>: The ASAP intervention is a 3-year program that provides wraparound supports to students. Features of ASAP include a full-time enrollment requirement; an ASAP advisor; support from an ASAP career and employment services staff member; ASAP dedicated tutoring services; course enrollment support, including an option for an ASAP study success seminar; and financial support in the form of tuition waivers, free public transportation, and free textbooks.</p> <p>Relevant to this recommendation, attendance at advising appointments was linked to students' receipt of monthly MetroCards (public transit passes). Requirements and messaging encouraged the desired behaviors in the program.</p>	<p><u>Business-as-usual</u>: The comparison group had access to business-as-usual courses and services including academic advisors, career services, and tutoring sessions.</p> <p>Comparison students were also not required to be enrolled full-time.</p>	<p>Progressing in college: <math>g = 0.34^*</math></p> <p>Academic achievement: <math>g = 0.23^*</math></p> <p>Postsecondary degree attainment: <math>g = 0.28^*</math></p>

<sup>a</sup> A study with a *small sample* includes fewer than 350 participants. A study with a *large sample* includes 350 or more participants.

<sup>b</sup> Unless otherwise indicated, listed features of the intervention condition were not present in the comparison condition.

\* = statistically significant at the .05 level.



## Appendix D: About the Authors

### Panel

**Melinda Karp, PhD (Panel Chair)**, founded Phase Two Advisory after nearly 20 years conducting research on education reform and working with colleges. A nationally-recognized expert on smoothing students' transitions to college and supporting them once there, she found herself increasingly being asked to help colleges and foundations figure out what to do with the research findings she produced. At Phase Two, Dr. Karp works with colleges, networks, and foundations to translate research evidence into reform strategies and implementation plans, including conducting professional learning, strategic planning, and critical friends research. Prior to founding Phase Two, Dr. Karp was the assistant director at the Community College Research Center (CCRC), Teachers College, Columbia University. At CCRC, Dr. Karp led a large portfolio of studies focused on community college and high school reform. She was also responsible for building CCRC's internal functions, including managing professional development, strategic planning, and external relations. Dr. Karp has partnered with foundations to develop grant-making strategies, and state leaders on policy recommendations. She has worked with individual colleges and reform-oriented learning communities across the country to apply research findings to transformational reform processes.

**Sara Ackerson, EdM**, is a career advisor at Manchester Community College in New Hampshire. She previously served as the Assistant Director for Advising Initiatives at NASPA - Student Affairs Administrators in Higher Education. In her role, she supported the Advising Solution Network, a post-secondary initiative funded by the Bill and Melinda Gates Foundation. She has over twelve years of advising experience, working with students of all backgrounds, particularly focusing on transfer students and first-generation students. She was a member of the NACADA Professional Development Committee which created the NACADA Core Competencies and she has presented on these nationally, among other topics. She was responsible for professional development and onboarding across the Washington State University system, as well as the creation and facilitation of the First Year Seminar program at MCPHS University. She currently serves on the NACADA Webinar Advisory Board and as a NACADA Emerging Leader Mentor. Ms. Ackerson has published in the NACADA journal, as well as several blogs through NASPA and the Student Affairs Collective.

**Donna Linderman, MFA**, is the Associate Vice Chancellor for Academic Affairs within the CUNY Office of Academic Affairs. Her portfolio includes a broad array of university-wide programs designed to support the academic preparation and degree success of CUNY students including: Accelerated Study in Associate Programs (ASAP); Accelerate, Complete, and Engage (ACE); CUNY Start/Math Start; CUNY Educate, Develop, Graduate, and Empower (EDGE); CUNY Literacy and Language Programs; and the Fostering College Success Initiative (FCSI). She oversees ASAP's national replication efforts through provision of technical assistance for community colleges aiming to replicate ASAP (currently in Ohio, California, and New York) and also provides leadership within CUNY Academic Affairs including support for initiatives focused on academic momentum and timely degree completion. Ms. Linderman is regularly asked to speak at national conferences and convenings on community college completion and her written work has appeared in several education journals and conference proceedings.

**Brett McFarlane, EdD**, most recently served as NACADA Associate Director of External and Institutional Partnerships, where he focused on creating and sustaining a formal infrastructure in which external partners and institutions collaborate with NACADA in support of the Association’s goals focused on enhancing academic advising programs, structures, processes, training, and professional development worldwide. Prior to joining NACADA, he was Executive Director of Academic Advising, Undergraduate Education at UC Davis, where he oversaw campus-wide advising initiatives, assessment of advising, advising training and professional development, advising technology, and collaborative programming between academic and student affairs. Prior to UC Davis, Dr. McFarlane served as the Director of Undergraduate Programs for the College of Engineering at Oregon State University (OSU) where he worked with faculty, staff, and advisors to improve the student success and persistence of approximately 5,000 undergraduate engineering students. Before OSU, Dr. McFarlane served as the Director of Student Services for the School of Business at Portland State University (PSU) where he oversaw academic and career advising for approximately 3,200 undergraduate business students. Dr. McFarlane is co-author on a chapter entitled “Advocating for Academic Advising” in *Beyond Foundations: Developing as a Master Advisor* (2016). He has taught undergraduate courses in leadership, career development, college success, and accounting at the undergraduate level and coursework on first-year college students at the graduate level.

**Joe O’Shea, PhD**, is Dean of Undergraduate Studies and Assistant Provost at Florida State University. In this capacity, he serves as academic dean for most first and second-year students and leads the university’s nationally-recognized student success initiatives. Dr. O’Shea’s research and publications are primarily focused on the interventions and conditions which help students thrive. He is the author of *Gap Year: How Delaying College Changes People in Ways the World Needs*, published by Johns Hopkins University Press, and *Doing College Right: A Guide to Student Success*, published by Columbia University’s Teachers College Press. Dr. O’Shea served as the president of the board of the Gap Year Association, the leading national voice for gap year education, and as an elected board member for the Council on Undergraduate Research.

**Lashawn Richburg-Hayes, PhD**, is Vice President of Education at Insight Policy Research. Dr. Richburg-Hayes leads Insight’s work in education, which is principally focused on finding ways to improve academic outcomes among at-risk and vulnerable students. Previously she led MDRC’s work in higher education, principally focused on finding ways to increase academic achievement and persistence among low-income students attending community colleges and less selective 4-year universities. She is the principal investigator of an Institute for Education Services grant to evaluate a program to improve academic success and completion among males of color at a large community college. Dr. Richburg-Hayes is currently the president of the Society for Research on Educational Effectiveness.

## Staff

The panel also would like to thank the Review Coordinators Ms. Hannah Engle, Ms. Yuhe Gu, and Ms. Marissa Hashizume and the team of WWC-certified reviewers for their contributions to this practice guide.

**I-Fang Cheng, EdM**, is an Associate at Abt Associates and serves as the Deputy Project Director on the WWC Postsecondary Education, Postsecondary Preparation, and Evidence Reporting (PEPPER) contract. Ms. Cheng brings over 10 years of experience in education and workforce development

research and technical assistance efforts. She has contributed to a number of projects related to helping youth and adults transition to postsecondary education or the workforce for the U.S. Departments of Education, Labor, and Health and Human Services, including the Study of College Transition Messaging in Gaining Early Awareness and Readiness for Undergraduate Programs (ED), Technical Assistance for States Developing Career Pathways (ED), Career Pathways Design Study (DOL), Evaluation of the Community College Consortium for Bioscience Credentials (DOL), and Next Generation of Health Profession Opportunity Grants (HHS). She is a former adult education instructor and program manager and K-12 classroom teacher. Ms. Cheng received her EdM in International Education Policy from the Harvard Graduate School of Education.

**Emma Cocatre-Zilgien, MA**, is an Analyst at Abt Associates and contributes to synthesizing evidence on the WWC Postsecondary Education, Postsecondary Preparation, and Evidence Reporting (PEPPER) contract. Ms. Cocatre-Zilgien has experience with collecting and analyzing qualitative and quantitative data, drafting data-driven visual reports, synthesizing manuscripts, working collaboratively with clients, and project coordination. Her other work includes contributing to evaluations of early childhood learning programs, postsecondary transitions, and financial well-being. Ms. Cocatre-Zilgien received her MA in Educational Studies with a concentration in Program Evaluation and Improvement Research from the University of Michigan.

**Sarah Costelloe, PhD**, is a Principal Associate at Abt Associates and serves as the Project Director on the WWC Postsecondary Education, Postsecondary Preparation, and Evidence Reporting (PEPPER) contract. Dr. Costelloe has more than 15 years of experience in qualitative data collection, analysis, and interpretation and in working with stakeholders to design and implement evaluations of programs and policies funded at the district, state, and national levels. Outside of the WWC, Dr. Costelloe serves as the Project Director or Task Lead on projects related to early literacy, collective impact strategies, and research-practice partnerships. Prior to joining Abt Associates in 2015, Sarah served as the Director of Research and Evaluation for the Philadelphia Youth Network and as a Research Scientist at the U.S. Department of Education. Dr. Costelloe received her PhD in Education Policy from the University of Pennsylvania.

**Brian Freeman, EdM**, is an Associate at Abt Associates and serves as Intervention Report Director on the WWC Postsecondary Education, Postsecondary Preparation, and Evidence Reporting (PEPPER) contract. Mr. Freeman has significant experience with project and task management; survey sampling, design, programming, and administration; data cleaning and documentation; and descriptive and statistical analysis for large-scale public sector studies. Outside of the WWC, Mr. Freeman has directed the analysis of more than a dozen surveys for the U.S. Department of Education, the Corporation for National and Community Service, the U.S. Department of Health and Human Services, and the National Science Foundation. He is also leading the evaluation of a school leadership intervention supported by an Education Innovation and Research (EIR) grant. Mr. Freeman received his EdM in Education Policy and Management from Harvard University.

**Sebastian Lemire, PhD**, is an Associate at Abt Associates and contributes to study reviews and synthesizing evidence on the WWC Postsecondary Education, Postsecondary Preparation, and Evidence Reporting (PEPPER) contract. Dr. Lemire brings over 15 years of experience managing research and evaluation projects for public and private sector organizations. His broad range of evaluation and applied studies covers the fields of education, market development, and social welfare in both national and international settings. Prior to joining Abt Associates, he worked as a Senior

Evaluation Consultant at Ramboll Management and a Research Scientist at University of Washington. Sebastian currently serves as Associate Editor of the *American Journal of Evaluation* and as advisory board member of *Evaluation*. Dr. Lemire earned his PhD in Social Research Methodology at UCLA.

**Shawn Moulton, PhD**, is a Senior Associate at Abt Associates and serves as the Practice Guide Screening Coordinator on the WWC Postsecondary Education, Postsecondary Preparation, and Evidence Reporting (PEPPER) contract. Dr. Moulton has expertise designing and directing quantitative analyses of social programs, as well as substantive expertise in education, housing, and workforce programs. He is currently the Director of Analysis for the Department of Housing and Urban Development's First-Time Homebuyer Education and Counseling Demonstration. He is a WWC-certified reviewer and has extensive experience providing technical assistance on evaluation plans and analyses. Dr. Moulton received his PhD in Economics from the University of Notre Dame.

**Allan Porowski, MPA**, is a Principal Associate at Abt Associates and serves as the Lead Methodologist on the WWC Postsecondary Education, Postsecondary Preparation, and Evidence Reporting (PEPPER) contract. Mr. Porowski has a wide range of experience in the design and conduct of rigorous research studies, as well as in research synthesis and dissemination. Mr. Porowski has been on the WWC team since 2003 and has served as a reviewer on a number of WWC topic review and practice guide review teams, including Math, Character Education, Out-of-School Time, and Foundational Reading. He currently serves as co-Lead Methodologist for the WWC Literacy review teams (Beginning Reading and Adolescent Literacy). In a previous position, he managed the WWC Help Desk and served as Project Coordinator on the Dropout Prevention topic review. Mr. Porowski has served as Principal Investigator on other systematic review efforts, including the Texas Best Practices Clearinghouse, a Texas Education Agency study of best practices in dropout prevention, and a review of child food security interventions for Feeding America. He also currently serves as Project Director of the Regional Educational Laboratories Program Design Research Project, and contributes to Abt's evaluation of the Investing in Innovation Fund (i3) program. Prior to joining Abt Associates in 2014, Mr. Porowski was a Fellow at ICF International. Mr. Porowski received his MPA from American University.

## Appendix E: Disclosure of Potential Conflicts of Interest

Practice guide expert panels are composed of individuals who are nationally recognized for their knowledge and experience of the topics about which they are making recommendations. The Institute of Education Sciences expects the experts to be involved professionally in a variety of other matters that might relate to their work as a panelist. Panel members are asked to disclose these professional activities and institute deliberative processes that encourage critical examination of their views as they relate to the content of the practice guide. The potential influence of the panel members' professional activities is further muted by the requirement that they ground their recommendations in evidence that is documented in the practice guide. In addition, before all practice guides are published, they undergo an independent external peer review focusing on whether the evidence related to the recommendations in the guide has been presented appropriately.

The professional activities reported by each panel member that appear to be most closely associated with the panel recommendations are noted below.

**Melinda Karp** (Panel Chair) is the former Assistant Director of the Community College Research Center (CCRC). She is co-author of a report on student attitudes toward technology-mediated advising (Kalamkarian & Karp, 2015) that is cited in the implementation section of Recommendation 4. Other CCRC tools related to Dr. Karp's work are cited in the implementation sections of Recommendations 1 and 2.

**Donna Linderman** (Panelist) is the Associate Vice Chancellor for Academic Affairs within the City University of New York Office of Academic Affairs. She oversaw the implementation of CUNY ASAP (evaluated in Scrivener et al., 2015) and CUNY Start (evaluated in Scrivener et al., 2018). She also supported the Ohio ASAP replication (evaluated in Miller et al., 2020). The CUNY Start study provides evidence to support Recommendation 1. The two ASAP studies provide evidence to support Recommendations 1, 2, and 4. Features of the ASAP programs are also described in the implementation sections of Recommendations 1, 2, and 4.

**Brett McFarlane** (Panelist) is the former Associate Director of External and Institutional Partnerships at the National Academic Advising Association. NACADA resources are cited in the implementation sections of Recommendations 2 and 4. The UC Davis *Developing Deeper Advising Relationships* program was developed jointly by academic affairs and student affairs. Dr. McFarlane was the academic lead and partial sponsor for the project in that role.

**Lashawn Richburg-Hayes** (Panelist) is Vice President of Education at Insight Policy Research and was formerly Director of the Young Adults and Postsecondary Education Policy Area at MDRC. She co-authored the evaluation of the Louisiana Opening Doors program (Brock & Richburg-Hayes, 2006) that provides evidence for Recommendation 4. This study is also cited in the implementation section of Recommendation 2.

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NOTE: These studies meet WWC standards and provide the evidence base for the recommendations. Citations include hyperlinks to the WWC study review and the URL for the full text article in ERIC.

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## Studies not included in the meta-analysis

NOTE: These studies were reviewed as a potential source of evidence for the practice guide and they meet WWC standards; however, the panel determined that they were not relevant to any of the recommendations they developed for this practice guide. Citations include hyperlinks to the WWC study review and the URL for the full text article in ERIC.

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## Notes

- <sup>1</sup> McFarland et al. (2019) (this source was not included in the meta-analyses for this practice guide).
- <sup>2</sup> McFarland et al. (2019) (this source was not included in the meta-analyses for this practice guide).
- <sup>3</sup> **Hodara et al. (2017);** Page & Scott-Clayton (2016) (this source was not included in the meta-analyses for this practice guide).
- <sup>4</sup> There are many different terms for this form of expanded advising, including developmental, enhanced, proactive, and student-centered, and these descriptors are sometimes used interchangeably.
- <sup>5</sup> Achieving the Dream is a network of more than 220 community colleges and 75 coaches and advisors committed to helping students—particularly those who are low income or of color—achieve their academic, personal, and economic goals. See Achieving the Dream (2018) and Achieving the Dream (2020) for additional resources on designing more holistic student supports (these sources were not included in the meta-analyses for this practice guide).
- <sup>6</sup> <https://ies.ed.gov/ncee/wwc/Document/1293>
- <sup>7</sup> The interventions in the studies supporting the recommendations in this guide were related to advising at 2- and 4-year postsecondary institutions and did not include advising for graduate students. Although post-graduation outcomes, such as employment or graduate school enrollment, were eligible for inclusion in the practice guide, none of the studies that met WWC standards reported findings in this domain.
- <sup>8</sup> Appendix C offers detailed information about each study that supports an individual recommendation, including information about the relevant features of each intervention.
- <sup>9</sup> This study, which was conducted in Canada, is the only study supporting the recommendations in this guide that was conducted outside of the United States.
- <sup>10</sup> All figures and mentions of specific colleges or programs in this guide are offered as examples only and should not be read as endorsements of specific products or approaches.
- <sup>11</sup> Some of the sources referenced in this practice guide were not derived from studies that provide evidence of effectiveness for the recommendations. Citations for studies that support a recommendation appear in **bold text** in the endnotes.
- <sup>12</sup> **Hodara et al. (2017); Nosaka & Novak (2014); Patel & Valenzuela (2013).**
- <sup>13</sup> **Hodara et al. (2017); Maton et al. (2000); Scrivener et al. (2015); Scrivener et al. (2018); Sundry (2017).**
- <sup>14</sup> **Hodara et al. (2017); Maton et al. (2000); Nosaka & Novak (2014); Patel & Valenzuela (2013).**
- <sup>15</sup> **Miller et al. (2020); Scrivener et al. (2015); Scrivener et al. (2018).**
- <sup>16</sup> **Miller et al. (2020); Patel & Valenzuela (2013); Scrivener et al. (2015); Scrivener et al. (2018).**

- <sup>17</sup> Hodara et al. (2017); Maton et al. (2000); Nosaka & Novak (2014); Sundy (2017).
- <sup>18</sup> Hodara et al. (2017); Nosaka & Novak (2014); Patel & Valenzuela (2013).
- <sup>19</sup> Miller et al. (2020).
- <sup>20</sup> Miller (2004) (this source was not included in the meta-analyses for this practice guide).
- <sup>21</sup> Achieving the Dream (2018) (this source was not included in the meta-analyses for this practice guide).
- <sup>22</sup> Hodara et al. (2017); Maton et al. (2000); Miller et al. (2020); Nosaka & Novak (2014); Scrivener et al. (2015); Scrivener et al. (2018); Sundy (2017).
- <sup>23</sup> Scrivener & Weiss (2009).
- <sup>24</sup> Hodara et al. (2017); Patel & Valenzuela (2013).
- <sup>25</sup> Patel & Valenzuela (2013).
- <sup>26</sup> McDonnell et al. (2014) (this source was not included in the meta-analyses for this practice guide).
- <sup>27</sup> Maton et al. (2000); Miller et al. (2020); Scrivener et al. (2015); Scrivener et al. (2018).
- <sup>28</sup> Hodara et al. (2017); Maton et al. (2000); Scrivener et al. (2015); Scrivener et al. (2018); Sundy (2017).
- <sup>29</sup> Maton et al. (2000); Miller et al. (2020); Nosaka & Novak (2014); Scrivener et al. (2015); Scrivener et al. (2018).
- <sup>30</sup> Maton et al. (2000); Scrivener et al. (2018).
- <sup>31</sup> For additional information on ASAP program structure, components, and management, see [http://www1.cuny.edu/sites/asap/wp-content/uploads/sites/8/2021/01/28283961\\_300152\\_CUNY\\_ASAP\\_Inside\\_ASAP\\_Guide\\_WEB\\_m2.pdf](http://www1.cuny.edu/sites/asap/wp-content/uploads/sites/8/2021/01/28283961_300152_CUNY_ASAP_Inside_ASAP_Guide_WEB_m2.pdf) (this source was not included in the meta-analyses for this practice guide).
- <sup>32</sup> Patel & Valenzuela (2013).
- <sup>33</sup> Nosaka & Novak (2014).
- <sup>34</sup> Hodara et al. (2017); Scrivener et al. (2015).
- <sup>35</sup> Gandhi & Hodara (2017, p. 7) (this source was not included in the meta-analyses for this practice guide).
- <sup>36</sup> Hodara et al. (2017); Scrivener et al. (2015).
- <sup>37</sup> Miller et al. (2020).
- <sup>38</sup> See [http://www1.cuny.edu/sites/asap/wp-content/uploads/sites/8/2021/01/28283961\\_300152\\_CUNY\\_ASAP\\_Inside\\_ASAP\\_Guide\\_WEB\\_m2.pdf](http://www1.cuny.edu/sites/asap/wp-content/uploads/sites/8/2021/01/28283961_300152_CUNY_ASAP_Inside_ASAP_Guide_WEB_m2.pdf) (this source was not included in the meta-analyses for this practice guide).
- <sup>39</sup> Scrivener et al. (2015).

- <sup>40</sup> Hodara et al. (2017); Miller et al. (2020); Scrivener et al. (2015).
- <sup>41</sup> Miller et al. (2020).
- <sup>42</sup> See <https://ccrc.tc.columbia.edu/publications/redesigning-advising-student-support-tools-practitioners.html> (this source was not included in the meta-analyses for this practice guide).
- <sup>43</sup> Brock & Richburg-Hayes (2006); Nosaka & Novak (2014); Maton et al. (2000); Scrivener & Weiss (2009); Scrivener et al. (2015).
- <sup>44</sup> Saint Leo University (n.d., p. 1) (this source was not included in the meta-analyses for this practice guide).
- <sup>45</sup> See <https://employees.crc.losrios.edu/guided-pathways/student-success-teams> (this source was not included in the meta-analyses for this practice guide).
- <sup>46</sup> Visher (2016, p. 7) (this source was not included in the meta-analyses for this practice guide).
- <sup>47</sup> Nosaka & Novak (2014); Miller et al. (2020); Scrivener et al. (2015); Scrivener et al. (2018).
- <sup>48</sup> Weiss et al. (2011) (this source was not included in the meta-analyses for this practice guide).
- <sup>49</sup> Hodara et al. (2017); Patel & Valenzuela (2013).
- <sup>50</sup> Bettinger & Baker (2014); Binder et al. (2015); Hodara et al. (2017); Maton et al. (2000); Miller et al. (2020); Nosaka & Novak (2014); Patel & Valenzuela (2013); Scrivener et al. (2015).
- <sup>51</sup> For more information on the core principles of the evidence-based framework for *sustained, strategic, intrusive, personalized, and proactive* (SSIPP) advising, see Community College Research Center (2013); Klempin et al. (2019); and Achieving the Dream (2018) (these sources were not included in the meta-analyses for this practice guide).
- <sup>52</sup> Bailey et al. (2016, p. 21) (this source was not included in the meta-analyses for this practice guide).
- <sup>53</sup> Community College Research Center (2017) (this source was not included in the meta-analyses for this practice guide).
- <sup>54</sup> For example, see the *Highlights from the Field* “Promoting Efficient Individualized Advising Through the Use of Technology: Enhanced iPASS” in this chapter.
- <sup>55</sup> Bettinger & Baker (2014); Binder et al. (2015); Mayer et al. (2019); Miller et al. (2020); Patel & Valenzuela (2013); Scrivener & Weiss (2009); Scrivener et al. (2015).
- <sup>56</sup> Hodara et al. (2017); Maton et al. (2000); Nosaka & Novak (2014).
- <sup>57</sup> Bettinger & Baker (2014); Binder et al. (2015); Miller et al. (2020); Scrivener et al. (2015).
- <sup>58</sup> Maton et al. (2000); Scrivener et al. (2015); Patel & Valenzuela (2013).
- <sup>59</sup> Bloom & McLellan (2016) (this source was not included in the meta-analyses for this practice guide).
- <sup>60</sup> For additional information, see <https://www.appreciativeadvising.net/resources.html>.
- <sup>61</sup> Maton et al. (2000).

- <sup>62</sup> **Scrivener et al. (2015).**
- <sup>63</sup> **Patel & Valenzuela (2013).**
- <sup>64</sup> **Scrivener et al. (2015).**
- <sup>65</sup> **Scrivener & Weiss (2009).**
- <sup>66</sup> **Miller et al. (2020).**
- <sup>67</sup> Since the conclusion of the study and broad expansion of the program since 2015, the CUNY ASAP student-advisor ratio increased to 150:1 while continuing to realize similar outcomes. See **Miller et al. (2020).**
- <sup>68</sup> **Scrivener et al. (2015).**
- <sup>69</sup> **Scrivener et al. (2015).**
- <sup>70</sup> Visher et al. (2012) (this source was not included in the meta-analyses for this practice guide).
- <sup>71</sup> **Maton et al. (2000).**
- <sup>72</sup> **Miller et al. (2020); Scrivener et al. (2018).**
- <sup>73</sup> Bailey et al. (2016, p. 21) (this source was not included in the meta-analyses for this practice guide).
- <sup>74</sup> See the exhibit produced by the Ada Center and the Aspen Institute (n.d.) that depicts how higher education leaders can make decisions regarding how to invest in technology that supports student success (this source was not included in the meta-analyses for this practice guide).
- <sup>75</sup> **Bettinger & Baker (2014); Brock & Richburg-Hayes (2006); Mayer et al. (2019); Scrivener et al. (2015).**
- <sup>76</sup> See What Works Clearinghouse (2019) for an intervention report on InsideTrack, <https://ies.ed.gov/ncee/wwc/InterventionReport/696> (this source was not included in the meta-analyses for this practice guide).
- <sup>77</sup> **Bettinger & Baker (2014).**
- <sup>78</sup> **Scrivener & Weiss (2009).**
- <sup>79</sup> **Mayer et al. (2019).**
- <sup>80</sup> **Mayer et al. (2019).**
- <sup>81</sup> **Maton et al. (2000).**
- <sup>82</sup> Plante & Bata (2016) (this source was not included in the meta-analyses for this practice guide).
- <sup>83</sup> **Scrivener et al. (2015).**
- <sup>84</sup> Powell et al. (2013) (this source was not included in the meta-analyses for this practice guide).
- <sup>85</sup> **Patel & Valenzuela (2013, pp. 26-27).**

- <sup>86</sup> Boykin & Prince (2015); Strumbos et al. (2018) (these sources were not included in the meta-analyses for this practice guide).
- <sup>87</sup> **Miller et al. (2020, p. 21).**
- <sup>88</sup> For more on flipped advising, see Steele (2016) (this source was not included in the meta-analyses for this practice guide).
- <sup>89</sup> The words in italics correspond to a revised version of Bloom's taxonomy, which focuses on cognitive aspects of learning (see Bloom & McLellan, 2016) (this source was not included in the meta-analyses for this practice guide). For more on this taxonomy, see Anderson & Krathwohl (2001) (this source was not included in the meta-analyses for this practice guide).
- <sup>90</sup> **Campbell & Campbell (2007); Lavallais (2017); Maton et al., (2000).**
- <sup>91</sup> **Kim et al. (2013); Dennehy & Dasgupta (2017); Thomas (2005).**
- <sup>92</sup> **Maton et al. (2000).**
- <sup>93</sup> **Kim et al. (2013); Medina (2016); Nosaka & Novak (2014); Thomas (2005).**
- <sup>94</sup> **Bettinger & Baker (2014).**
- <sup>95</sup> **Bettinger & Baker (2014); Dennehy & Dasgupta (2017); Kim et al. (2013); Lavallais (2017); Mayer et al. (2019); Oreopoulos & Petronijevic (2018); Servies (1999); Thomas (2005).**
- <sup>96</sup> **Campbell & Campbell (2007); Maton et al. (2000); Medina (2016); Nosaka & Novak (2014).**
- <sup>97</sup> **Dennehy & Dasgupta (2017); Kim et al. (2013); Thomas (2005).**
- <sup>98</sup> **Medina (2016).**
- <sup>99</sup> **Nosaka & Novak, 2014.**
- <sup>100</sup> **Thomas (2005).**
- <sup>101</sup> **Campbell & Campbell (2007); Maton et al. (2000).**
- <sup>102</sup> **Bettinger & Baker (2014).**
- <sup>103</sup> **Kim et al. (2013); Dennehy & Dasgupta (2017); Thomas (2005).**
- <sup>104</sup> **Kim et al. (2013).**
- <sup>105</sup> **Dennehy & Dasgupta (2017).**
- <sup>106</sup> **Dennehy & Dasgupta (2017); Thomas (2005).**
- <sup>107</sup> **Campbell & Campbell (2007).**
- <sup>108</sup> **Maton et al. (2000).**
- <sup>109</sup> **Bettinger & Baker (2014).**
- <sup>110</sup> **Bettinger & Baker (2014); Dennehy & Dasgupta (2017); Maton et al. (2000); Servies (1999).**



- <sup>111</sup> **Dennehy & Dasgupta (2017); Servies (1999); Maton et al. (2000); Medina (2016); Thomas (2005).**
- <sup>112</sup> **Bettinger & Baker (2014); Kim et al. (2013); Mayer et al. (2019); Oreopoulos & Petronijevic (2018).**
- <sup>113</sup> **Kim et al. (2013); Medina (2016); Servies (1999).**
- <sup>114</sup> **Campbell & Campbell (2007); Dennehy & Dasgupta (2017); Oreopoulos & Petronijevic (2018); Thomas (2005).**
- <sup>115</sup> **Dennehy & Dasgupta (2017); Kim et al. (2013); Oreopoulos & Petronijevic (2018); Servies (1999); Thomas (2005).**
- <sup>116</sup> **Kim et al. (2013, p. 45).**
- <sup>117</sup> **Servies (1999).**
- <sup>118</sup> **Thomas (2005).**
- <sup>119</sup> **Thomas (2005).**
- <sup>120</sup> **Kim et al. (2013).**
- <sup>121</sup> **Thomas (2005).**
- <sup>122</sup> **Medina (2016).**
- <sup>123</sup> **Campbell & Campbell (2007).**
- <sup>124</sup> **Thomas (2015).**
- <sup>125</sup> **Maton et al. (2000).**
- <sup>126</sup> **Dennehy & Dasgupta (2017).**
- <sup>127</sup> **Nosaka & Novak (2014).**
- <sup>128</sup> Bailey et al. (2016) (this source was not included in the meta-analyses for this practice guide).
- <sup>129</sup> **Binder et al. (2015); Brock & Richburg-Hayes (2006); Miller et al. (2020); Patel & Valenzuela (2013); Scrivener et al. (2015); Scrivener & Weiss (2009).**
- <sup>130</sup> **Binder et al. (2015); Brock & Richburg-Hayes (2006); Miller et al. (2020); Patel & Valenzuela (2013); Scrivener & Weiss (2009); Scrivener et al. (2015).**
- <sup>131</sup> **Scrivener et al. (2015); Strumbos et al. (2018)** (this source was not included in the meta-analyses for this practice guide).
- <sup>132</sup> Bailey et al. (2016); Kalamkarian & Karp (2015) (these sources were not included in the meta-analyses for this practice guide).
- <sup>133</sup> **Scrivener & Weiss (2009).**

- <sup>134</sup> **Patel & Valenzuela (2013).**
- <sup>135</sup> **Nosaka & Novak (2014).**
- <sup>136</sup> **Patel & Valenzuela (2013).**
- <sup>137</sup> **Nosaka & Novak (2014).**
- <sup>138</sup> Schreiner & Anderson (2005) (this source was not included in the meta-analyses for this practice guide).
- <sup>139</sup> Soria et al. (2017) (this source was not included in the meta-analyses for this practice guide).
- <sup>140</sup> **Binder et al. (2015); Miller et al. (2020); Patel & Valenzuela (2013);** Visher et al. (2012) (this source was not included in the meta-analyses for this practice guide); Weiss et al. (2014) (this source was not included in the meta-analyses for this practice guide).
- <sup>141</sup> **Miller et al. (2020).**
- <sup>142</sup> Visher et al. (2012); Weiss et al. (2014) (these sources were not included in the meta-analyses for this practice guide).
- <sup>143</sup> **Patel & Valenzuela (2013).**
- <sup>144</sup> **Binder et al. (2015).**
- <sup>145</sup> Mares (2016) (this source was not included in the meta-analyses for this practice guide).
- <sup>146</sup> **Brock & Richburg-Hayes (2006).**
- <sup>147</sup> Studies were reviewed using the WWC Version 4.0 Standards Handbook, available at <https://ies.ed.gov/ncee/wwc/Handbooks>, and the version 4.0 practice guide review protocol available at <https://ies.ed.gov/ncee/wwc/Document/1293>.
- <sup>148</sup> Following WWC guidelines, improved outcomes are indicated by a positive, statistically significant effect from a meta-analytic effect size calculated separately for each relevant outcome domain. For more information on how the WWC calculates these effect sizes and determines levels of evidence, see the WWC Version 4.1 Procedures Handbook at <https://ies.ed.gov/ncee/wwc/Handbooks>.
- <sup>149</sup> Outcome domains relevant to the scope of the practice guide are defined by the protocol used for the systematic review.
- <sup>150</sup> Key outcome domains are those that are most relevant to each specific recommendation.
- <sup>151</sup> If the finding in the relevant outcome domain is from only a single study, then the effect size from that study takes the place of the mean effect from a fixed-effects meta-analysis.
- <sup>152</sup> American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999).
- <sup>153</sup> <https://ies.ed.gov/ncee/wwc/Document/1293>

- <sup>154</sup> The updated *What Works Clearinghouse Standards and Procedures Handbook, Version 4.1* was publicly available at the time of release of this practice guide. However, the reviews of studies that contributed to this practice guide's recommendations were conducted prior to that update. Therefore, the reviews for this practice guide were conducted under *Version 4.0*. Levels of evidence were assessed using a fixed-effects meta-analysis, following guidance in *Version 4.1*, however.
- <sup>155</sup> WWC practice guides aim to summarize the entire evidence base for a recommendation, so they do not exclude studies with non-significant findings. Small studies with non-significant positive findings can contribute to a statistically significant positive mean meta-analytic effect size. See appendix C for more detail on the fixed-effects meta-analysis approach used by the WWC.
- <sup>156</sup> The 16 studies not relevant to the recommendations tested interventions such as student success courses that did not generate evidence of positive impacts. Because practice guides focus on recommendations backed by at least some evidence of positive impacts, the panel did not rely on these studies to generate a recommendation. The study reviews for the 16 studies can be viewed on the individual studies page of the What Works Clearinghouse website. These study reviews are hyperlinked in the References list.
- <sup>157</sup> The WWC chose the fixed-effects model because its goal is to make inferences about the studies in WWC intervention reports and practice guides. Unlike the fixed-effect (singular) model, the fixed-effects (plural) model does not assume that the studies are estimating a common effect. Instead, the fixed-effects model assumes that the observed variation among the effect sizes in the meta-analysis reflects the true variation in population effects. Accordingly, inferences to larger study populations are constrained to those that share the same patterns of important study characteristics that are related to effect size. See Hedges and Vevea's (1998) *What Works Clearinghouse Standards and Procedures Handbook, Version 4.1*.

The WWC carefully weighed the various options for meta-analysis, including using random effects estimation. We determined that the fixed-effects modeling approach is currently the best option for the WWC, based on the available research. Implementing a random effects model requires estimating the between-studies variance component, and this estimate is poor unless the meta-analysis includes a relatively large number of studies. The fixed-effects approach allows the WWC to conceptually acknowledge variability in effects. As of January 2020, the largest synthesis conducted by the WWC was based on nine studies, and most WWC intervention reports are far smaller: two or three studies is typical. Therefore, we believe that for the foreseeable future, it is not practical for the WWC to adopt a random effects model for its syntheses. <https://ies.ed.gov/ncee/wwc/Docs/referenceresources/SumResponsePublicComments-v4-1-508.pdf>.

- <sup>158</sup> If multiple contrasts from a study are entered into a meta-analysis, participants from experimental conditions that are common across contrasts will be counted twice, resulting in effect sizes that are statistically dependent. This dependence in a meta-analysis can create a serious threat to the validity of the results.
- <sup>159</sup> For the postsecondary degree attainment outcome domain, we prioritized the outcomes measured at the longest follow-up time point reported. For cumulative outcomes in the progressing in college domain such as credit accumulation, we prioritized outcomes that began closest to the end of the intervention and extended to the longest follow-up time point. For more detail, see page 9 of the practice guide review protocol (<https://ies.ed.gov/ncee/wwc/Document/1293>).

<sup>160</sup> Miller et al. (2020); Patel & Valenzuela (2013); Scrivener et al. (2015); Scrivener et al. (2018).

<sup>161</sup> Hodara et al. (2017); Maton et al. (2000); Nosaka & Novak (2014); Sundy (2017).

<sup>162</sup> Bettinger & Baker (2014); Binder et al. (2015); Mayer et al. (2019); Miller et al. (2020); Patel & Valenzuela (2013); Scrivener & Weiss (2009); Scrivener et al. (2015).

<sup>163</sup> Hodara et al. (2017); Maton et al. (2000); Nosaka & Novak (2014).

<sup>164</sup> Bettinger & Baker (2014); Dennehy & Dasgupta (2017); Kim et al. (2013); Lavallais (2017); Mayer et al. (2019); Oreopoulos & Petronijevic (2018); Servies (1999); Thomas (2005).

<sup>165</sup> Campbell & Campbell (2007); Maton et al. (2000); Medina (2016); Nosaka & Novak (2014).

<sup>166</sup> Binder et al. (2015); Brock & Richburg-Hayes (2006); Miller et al. (2020); Patel & Valenzuela (2013); Scrivener & Weiss (2009); Scrivener et al. (2015).