INTEGRATING TECHNOLOGY AND ADVISING

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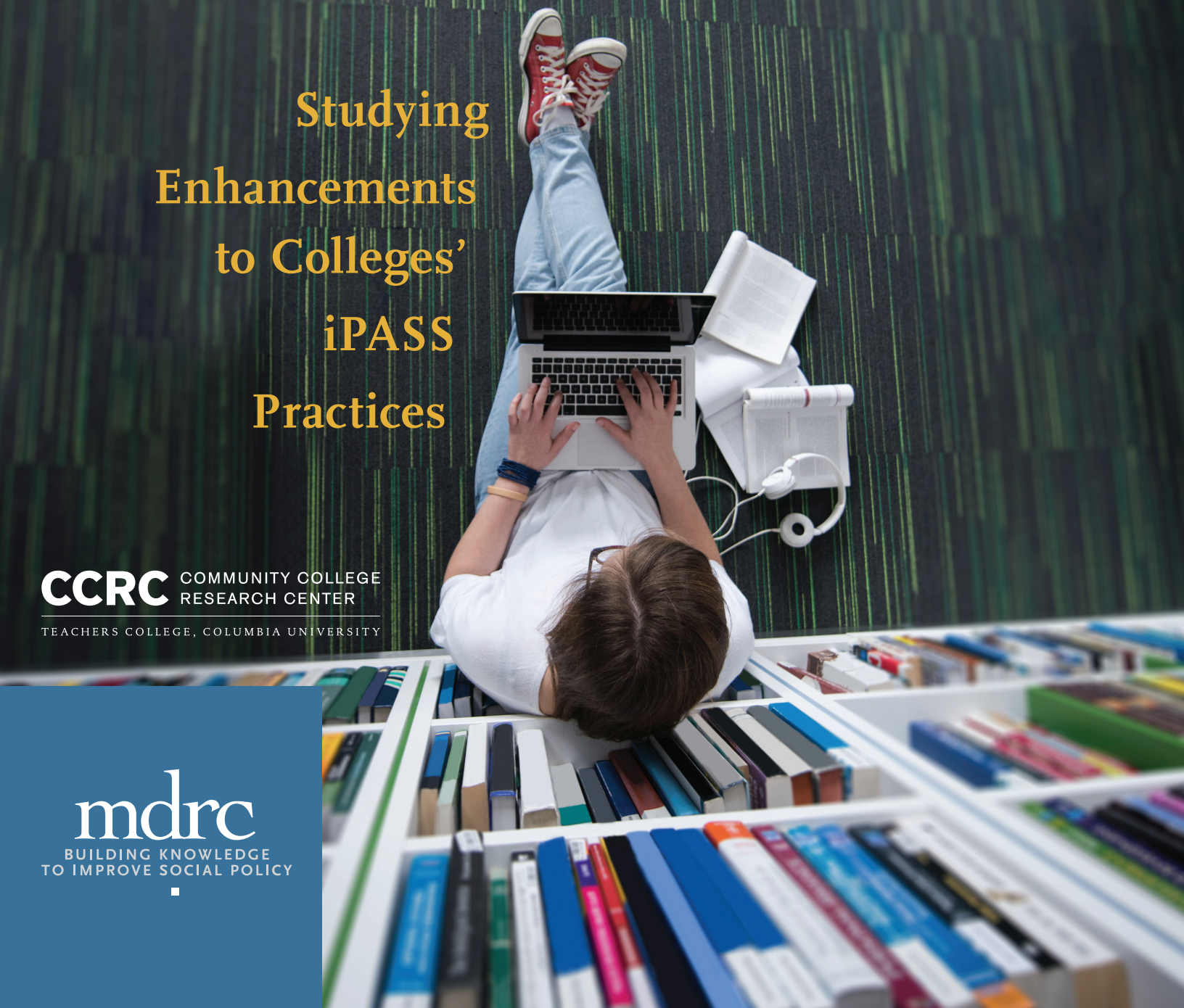
JULY 2019

Studying Enhancements to Colleges' iPASS Practices



CCRC COMMUNITY COLLEGE RESEARCH CENTER
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

mdrc
BUILDING KNOWLEDGE TO IMPROVE SOCIAL POLICY

Integrating Technology and Advising

Studying Enhancements to Colleges' iPASS Practices

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OVERVIEW

Across the United States, college graduation rates for low-income students are too low. There are many contributing factors: inadequate academic preparation, the cost of college, challenges balancing work and school, difficulties that many first-generation students face navigating college, and institutional practices that may unintentionally hold students back. A key element of the programs that are most effective at helping students stay on track is frequent advising, including reaching out to students who seem to be struggling. In many cases, however, resources limit the amount of time advisers can spend with students. Employing technology to improve the staff's ability to provide high-quality advising can be an attractive strategy for institutions looking to make system-wide changes.

Integrated Planning and Advising for Student Success (iPASS) is an initiative funded by the Bill & Melinda Gates Foundation to support colleges that seek to incorporate technology into their advising and student services. In iPASS, such technology is intended to increase advising's emphasis on a student's entire college experience, enabling advisers to more easily (1) intervene when students show early warning signs of academic and nonacademic challenges, (2) regularly follow up as students progress through college, (3) refer students to tutoring and other support services when needed, and (4) provide personalized guidance that reflects students' unique needs.

To study how technology can support advising redesign, MDRC and the Community College Research Center partnered with three institutions already implementing iPASS: California State University, Fresno; Montgomery County Community College; and the University of North Carolina at Charlotte. The three institutions increased the emphasis on providing timely support, boosted their use of advising technologies, and used administrative and communication strategies to increase student contact with advisers. The enhancements at all three institutions are being evaluated using a randomized controlled trial research design.

This report shows that the enhancements generally produced only a modestly different experience for students in the program group compared with students in the control group, although at one college, the enhancements did substantially increase the number of students who had contact with an adviser. Consequently, it is not surprising that the enhancements have so far had no discernible positive effects on students' academic performance. The findings also highlight the potential for unintended consequences. Before the study, each of the institutions had required that certain groups of students see an adviser before registering for classes in the next semester. Each institution expanded this preregistration requirement to include all students in the study's program groups, but at one institution, the requirement appears to have contributed to a small reduction in earned credits.

Even though the enhancements have not yet produced clear improvements in students' academic performance, in interviews, some staff members at the institutions indicated that their work in the iPASS initiative and their work on the enhancements studied here are important steps toward a stronger system to support students and help them succeed. In general, the institutions in this study have made progress in making advising technologies and data accessible to students, advisers, and faculty — and in experimenting with new strategies to use these technologies in student advising — but each also faced challenges.

It is still early, and there is much to learn about how to use technologies and advising practices to drive improvements in student outcomes. Institutional practices are changing; the next step is to build on these advances to produce larger changes in the student experience.

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PREFACE

Community colleges and broad-access four-year institutions make college possible for millions of low-income students across the country. Unfortunately, many students face numerous academic and nonacademic obstacles to postsecondary success. A growing body of evidence shows that strong advising and student support practices can help alleviate some of these obstacles. Many institutions, however, have high student-to-adviser ratios, which limit the time advisers can spend with students, make it difficult for advisers to provide sufficient academic guidance, and reduce their opportunities to help students take advantage of other support services. To help address these challenges, many institutions are adopting new technologies designed to assist advisers and students. Colleges are still learning how best to integrate these new technologies, and it is not yet clear whether this approach will prove effective.

Integrated Planning and Advising for Student Success (iPASS) is an initiative funded by the Bill & Melinda Gates Foundation to help colleges redesign their student support services with the aid of technology. The initiative includes a research component to build knowledge about what works and to share lessons from the institutions' experiences. This report details the efforts of three institutions to extend their iPASS work to a larger group of students, with new enhancements. These institutions worked with MDRC and the Community College Research Center to evaluate the effects of the enhancements using a random assignment study.

The institutions in this project approached the study as a learning endeavor and an opportunity to make research-informed design decisions as they expand iPASS practices. iPASS is an ambitious initiative, and the early findings presented in this report show that, while the enhancements modestly changed students' experiences, they have not yet produced clear positive effects on students' outcomes. At one college, the expansion of a commonly used strategy to require students to see an adviser before registering for classes appears to have led to a small negative effect. Each of the institutions, however, made progress integrating technology and data with advising, getting more students in to see advisers, and expanding the content of advising sessions. Each also faced difficulties. The findings reinforce that institutional change is challenging and that it often takes time before reform efforts are converted into substantial changes in students' experiences.

The report describes the diligent and thoughtful work college staff members did to enhance their student support services, providing lessons on the use of technology in advising practice. A report next year will provide more detail on the qualitative findings outlined in this report. A final report will provide longer-term data so colleges can better understand how to incorporate technology into their advising practices.

Gordon L. Berlin
President, MDRC

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In 2016, the Community College Research Center (CCRC) at Teachers College, Columbia University, received a grant from the Bill & Melinda Gates Foundation for CCRC and MDRC to conduct a large-scale evaluation of iPASS. We greatly appreciate the foundation's generous backing and ongoing commitment.

We are indebted to the leadership, administrators, and staff members at California State University, Fresno; Montgomery County Community College; and the University of North Carolina at Charlotte for making this project come to life. They worked tirelessly to implement the enhancements to iPASS necessary to carry out the research and made time in their busy schedules to act as dynamic collaborators throughout the life of the project. In addition to their efforts administering the enhancements, these individuals provided invaluable insights through their willingness to meet regularly and participate in interviews. In particular, this research would not have been possible without the diligent efforts of Ashley Fagundes, Hongtao Yue, Dennis Nef, and Kathy Dunbar at Fresno State, LeeFredrick Bowen, Lisa Walker, and John Smail at UNCC, and Stefanie Crouse, Craig Smith, David Kowalski, Celeste Schwartz, and Phil Needles at Montgomery County Community College.

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Finally, we would like to thank the students who participated in the evaluation at Fresno State, UNCC, and Montgomery County Community College. We are especially grateful to the students who participated in interviews or focus groups. We hope that the findings from the evaluation will be used to improve college programs and services for them and others in the future.

The Authors

EXECUTIVE SUMMARY

There is wide recognition that postsecondary graduation rates for low-income students are too low. Multiple factors contribute to poor college outcomes, including inadequate academic preparation, the cost of college, challenges balancing work and school, difficulties that many first-generation students face navigating college, and institutional practices that may unintentionally hold students back. Colleges and universities are experimenting with new strategies to improve student persistence and completion. Frequent, proactive advising has emerged as a key element of the most effective programs that help students stay on track to graduation.

In many cases, however, resources limit the amount of time advisers can spend with students and inhibit the delivery of frequent and consistent high-quality advising. Advisers at community colleges and broad-access universities generally have large caseloads (some colleges assign as many as 1,200 students to a single adviser). Employing technology to improve the staff's ability to provide high-quality advising can be an attractive strategy for institutions looking to make system-wide improvements. Theoretically, if colleges use advising technology effectively, advisers can improve their efficiency, spending less time on administrative tasks and more time on student support informed by data. In practice, however, it is not yet clear whether this use of technology and data will be enough to measurably improve student outcomes.

Integrated Planning and Advising for Student Success (iPASS) is an initiative that the Bill & Melinda Gates Foundation began funding in 2013 to support colleges incorporating technology into their advising and student services. In iPASS, technology is intended to increase advising's emphasis on a student's entire college experience, enabling advisers to more easily (1) intervene when students show early warning signs of academic and nonacademic challenges, (2) regularly follow up as students progress through college, (3) refer students to tutoring and other support services when needed, and (4) provide personalized guidance that reflects students' unique needs.

To continue to understand how technology can support advising redesign, MDRC and the Community College Research Center partnered with two broad-access universities and one community college to refine and extend the schools' work under their existing iPASS grants and to study the effects of the enhancements on student outcomes. Using a random assignment research design and qualitative research, including interviews with students, advisers, and administrators, the study will provide rigorous evidence about the effects of the enhancements and help the institutions advance their work and inform the field.

THE STUDY OF ENHANCED iPASS

The three schools involved in this study present the opportunity to study the intervention in notably different contexts. California State University, Fresno (Fresno State), which is designated as a Hispanic-Serving Institution, and the University of North Carolina at Charlotte (UNCC), which serves a large number of transfer students, are both large four-year institutions with graduate schools,

serving mostly full-time students. Montgomery County Community College (MCCC) is a two-year college in suburban Pennsylvania, and about two-thirds of its students attend part time.

The project was supported by institutional leaders and entailed collaboration between college staff members and researchers to design a two-semester program that extended the institutions' existing iPASS work to certain groups of students with some enhancements. One of the primary approaches was to require at least a subset of students to meet with an adviser at least once, enforced by a registration hold. The institutions aimed to enhance the quality of that advising session by encouraging advisers not only to talk with students about challenges they may be facing, but also to lead a discussion of academic and career goals informed by data gathered from technology adopted as part of the iPASS initiative. To motivate this type of discussion, each institution designed a college-specific "toolbox," a document that outlines three to four learning outcomes for students focused on information, skills, and cognitive development; topics for discussion; and questions for each topic that advisers may consider using to engage students.[1] The enhancements also increased use of early-alert systems, in which faculty members flag students who appear to be struggling in the first part of the semester.

The study enrolled eligible students through passive consent[2] and randomly assigned them to a program group, which was offered the two-semester enhanced iPASS program, or a control group, which received the institution's typical advising services — a version of unenhanced iPASS. The institutions offered the iPASS enhancements for two semesters, and students were enrolled in the study in two cohorts: 5,244 students were randomly assigned in the first cohort in spring 2017, and 2,767 students were randomly assigned in the second cohort in fall 2017, for a total of 8,011 students, with 3,760 in the program group and 4,251 in the control group. First-semester findings presented here include both cohorts; the second-semester findings are available only for the first cohort.

IMPLEMENTATION FINDINGS

The enhancements generally produced only a modestly different student experience for those in the program group, compared with what students in the control group experienced, although at Fresno State, the enhancements did substantially increase the number of students who had contact with an adviser. Each of the institutions also faced challenges with resource constraints and adviser capacity.

California State University, Fresno

Fresno State wanted to use early alerts more effectively to help students experiencing academic or nonacademic distress and also wanted to use an academic planning technology called MyDegreePlan to help students figure out what pathway they wanted to take and how to stay on track. To achieve

1 Elizabeth Wilcox, "An End to Checklist Thinking: Learning-Centered Advising in Practice," NACADA Clearinghouse (2016), www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/An-End-to-Checklist-Thinking-Learning-Centered-Advising-in-Practice.aspx.

2 The eligibility criteria varied by institution; details are given in the following sections. "Passive consent" means that students who met the study criteria were automatically enrolled. They were notified of their enrollment by email and allowed to opt out of having their data collected.

these objectives, the university designed enhanced advising practices with four key components: training for students on MyDegreePlan; additional early-alert surveys to faculty members who taught students in the program group; phone calls and emails from peer mentors; and required advising appointments to map students' education plans, address early alerts, and discuss strategies for staying on course to degree completion. Fresno State placed a registration hold on all students in the program group to enforce the advising appointments.

Key findings:

- Advisers informed students in the program group about MyDegreePlan and held degree planning training sessions as intended, but student participation was low.
- A significantly higher proportion of students in the program group received an early-alert flag than did students in the control group (about 35 percent versus 6 percent in their first semester).
- Peer mentors experienced some challenges reaching students by phone or email. During the first semester, they generally focused on reminding students about the advising session.
- The enhancements resulted in a substantial increase in the number of students who had contact with an adviser. Almost all students in the program group, compared with less than half of the control group, had contact with an adviser at least once.
- Advisers described addressing each topic listed in the toolbox, though there was variation in how they integrated this tool into their advising practice.

Montgomery County Community College

MCCC's iPASS enhancements targeted a group of students who were generally not receiving the college's existing iPASS services: at-risk continuing students in a degree program who were not already required to meet with an adviser. Students eligible for the study were those determined to have a "low" or "moderate" likelihood of persisting to the next semester, based on the college's predictive analytics tool. To provide advisers and students with more data on students' academic status and career aspirations, faculty members were asked to complete an additional early-alert survey for students in the program group; program group students were asked to self-report academic and nonacademic issues that could impede their academic progress; and program group students were asked to complete a career assessment, to use in conversations with advisers. The requirement to meet with an adviser was enforced through a registration hold.

Key findings:

- Advisers disagreed with the risk assessment of the predictive analytics tool and reported concerns that some students who seemed to be performing well had been determined to be at risk.
- Advisers received more early-alert data on students in the program group than on students in the control group in the first semester but not in the second semester.

- Few students completed the self-report survey, which was not required, and some older students and students near graduation found the required career assessment to be time consuming and unnecessary.
- The program increased outreach to students about academic issues, and advisers sent students personalized emails about early alerts, but it is unclear whether students read those emails.
- The program increased the number of advising appointments, but many students did not meet with advisers until after the semester ended.

University of North Carolina at Charlotte

UNCC's iPASS enhancement model focused on identifying at-risk students and conducting outreach and advising sessions with them. In its effort to provide more at-risk students with enhanced services, the university used registration holds, frequent and sustained communication with students, and a toolbox to guide advising sessions. The enhancements were designed to provide more data to students and advisers, including early alerts about student progress in key courses: A unique component of UNCC's enhancement model was an alert to students in the program group if they were enrolled in a "critical progression" course for their majors, such as Principles of Accounting for business majors or General Chemistry for biology majors. The institution asked the instructors of these courses to use the early-alert feature in the fourth week of the semester and send either warnings or positive feedback. After receiving the Week 4 early alerts, advisers encouraged students with early alerts to make an appointment for a face-to-face advising session. When midterm grades arrived, advisers would place registration holds on students who received two D or F grades or one D or F in a critical progression course.

Key findings:

- Students in the program group received considerably more communications from advisers than students in the control group.
- Similar proportions of students in the program and control groups were flagged for early alerts.
- Except for the Colleges of Business and Liberal Arts and Sciences, all the UNCC colleges that participated in the study already used mandatory registration holds that require all students to meet with advisers, so the registration hold provided limited contrast.
- Slightly more students in the program group had contact with an adviser. About 73 percent of the program group had contact with an adviser during the first semester of the intervention, compared with nearly 69 percent of the control group, a statistically significant difference; in the second semester, there was no significant difference.
- Most advisers used some portion of the toolbox and, in doing so, reported slightly more in-depth conversations with both groups of students.

EARLY FINDINGS ON STUDENT OUTCOMES

Overall, the enhancements to iPASS have not yet produced discernible positive effects on students' academic performance.

- At Fresno State, the iPASS enhancements produced no statistically significant effects on students' short-term educational outcomes.
- At MCCC, the enhancements to iPASS had a slightly negative estimated effect on students' academic progress, with statistically significant reductions of 0.3 credits in both credits attempted and credits earned in the first semester. The mechanics of the registration hold may have negatively affected enrollment in seven-week courses that began midsemester. If a program group student with a registration hold attempted to register for one of these courses, the student would have had little time before the add/drop deadline to contact the adviser to remove the hold. After two semesters, for the first cohort, students in the program group had earned an estimated 0.55 credits fewer than students in the control group. The estimated negative effect on credits attempted in the courses for which the add/drop period fell after the registration hold was placed (which includes summer courses) is 0.32 credits.
- At UNCC, the iPASS enhancements produced no statistically significant effects on students' short-term educational outcomes.

CONCLUSION

iPASS is an ambitious initiative to integrate technology, data, and advising. The ultimate goal is to improve student outcomes through improved advising practices. So far, the enhancements undertaken by institutions in this study have not produced clear evidence of improvements in student outcomes. This appears to be largely because the enhancements generally produced only a modestly different student experience for students in the program group, compared with students in the control group.

Still, some staff members at the institutions believe that their work in the iPASS initiative and their work on the enhancements studied here are important steps toward a stronger system to support students and help them succeed. It is clear that more work is needed: Across the three institutions, large proportions of students who were identified as being at high risk still earn Ds or Fs, or do not persist into subsequent semesters of college. In many ways the experiences of the institutions in this study highlight both the opportunities and the challenges that this kind of effort presents. Cross-departmental collaboration allowed the institutions to build on existing strengths and implement new strategies for many students. Collecting and responding to data about college students during the semester, however, remains a challenge. While promising, advanced data analytics carries risks; simpler, more transparent solutions still work better in some cases. And policies can have unintended consequences: Although registration holds can get more students to meet with advisers, the institutional and student-specific details are important.

This report provides a closer look at how three institutions engaged in a careful process to enhance and study their iPASS implementations. In addition to rigorous evidence about the impacts of the

enhancements, the report describes important lessons from the institutions' efforts to expand and enhance their iPASS reforms. A subsequent report will provide greater detail about the implementation of iPASS enhancements, in addition to guidance for practitioners interested in redesigning their advising practices using new technologies. A final report will document the effects on longer-term student outcomes.

CHAPTER
1

Introduction

There is wide recognition that college graduation rates for low-income students are too low. Multiple factors contribute to poor postsecondary outcomes, including inadequate academic preparation, the cost of college, challenges balancing work and school, difficulties that many first-generation students face navigating college, and institutional practices that may unintentionally hold students back. Colleges and universities are experimenting with new strategies to improve student persistence and completion. Frequent, proactive advising has emerged as a key element of the most effective programs that help students stay on track to graduation.[1]

Advising programs associated with higher persistence and graduation rates have a set of common characteristics: They put structures in place to encourage advisers to develop long-term relationships with students, in which advisers and students meet frequently throughout a student's time in college, often multiple times each month; to intervene with students when they show early signs of academic and nonacademic struggle, based on real-time information; and to provide personalized guidance and referrals that align with students' unique needs.[2] This kind of advising is not commonplace, however; it is resource intensive and challenging to scale up for all students.[3]

In many cases, resources limit the amount of time advisers have with students and inhibit the delivery of frequent and consistent high-quality advising. Advisers at community colleges and broad-access universities generally have large caseloads (some colleges assign as many as 1,200 students to a single adviser).[4] Partly as a consequence, many students meet with advisers only at one or two required milestones during their academic careers. Time- and resource-constrained advising sessions often focus on course registration. Course information and registration assistance are important, but many students face additional barriers to success that can arise at any point during the semester.[5] Consequently, institutions are looking for ways to help advisers work with students on the whole student experience.

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1 Karp, Kalamkarian, Klempin, and Fletcher (2016); Scrivener et al. (2015).

2 See, for example, Scrivener et al. (2015); Rolston, Copson, and Gardiner (2017); Sommo, Cullinan, and Manno (2018).

3 Scrivener et al. (2015); Headlam (2018).

4 Kalamkarian and Karp (2015).

5 Karp (2013); Scott-Clayton (2011).

The hope is that technology tools may help improve advising and maximize the use of existing resources, and many colleges have begun incorporating technology into their student support practices. In a national survey of about 1,000 college and university administrators, faculty members, and advisers, over 70 percent of respondents reported using advising technology, such as course planning tools.[6] Advising tools, new technology, and real-time data on students' progress can help advisers identify and reach out earlier to students at risk of poor college outcomes and can facilitate advising sessions that cover a broad spectrum of important topics: for example, by providing richer data about students and helping students make use of other resources, choose majors and careers, and graduate on time.

Integrating technology and advising can also be an attractive strategy for institutions looking to make system-wide changes. New software technology, for example, can be deployed and made accessible to all advisers, faculty, staff, and students with relatively small marginal costs after the initial investment. Theoretically, if colleges use advising technology effectively, advisers can improve efficiency, spend less time on administrative tasks, and free up more time for higher quality, data-informed student advising. In practice, however, it is not yet clear whether integrating this kind of technology and data into student advising will be enough to measurably improve student outcomes.

THE INTEGRATED PLANNING AND ADVISING FOR STUDENT SUCCESS (iPASS) INITIATIVE

Integrated Planning and Advising for Student Success (iPASS) is an initiative that the Bill & Melinda Gates Foundation began funding in 2013 to support colleges incorporating technology into their student support services. The initial funding solely supported the deployment of technology, but subsequent grants supported both technology and redesign of advising and student support services. In iPASS, advising technology is intended to increase the emphasis of advising on a student's entire college experience by enabling advisers to more easily (1) intervene with students proactively when they show signs of academic and nonacademic struggle, (2) regularly interact with students throughout their time in college, (3) refer students to tutoring and other support services as needed, and (4) provide students with personalized strategies for managing the challenges that arise in college.

Since 2015, various foundations have given additional iPASS grants to colleges to enact this reform. (See Box 1.1 for more information on the grant.) The colleges use diverse strategies and technology products, so no two colleges' iPASS work is identical. Many technology tools implemented through iPASS fall into one of these three categories:

- **Education planning tools** for selecting programs and courses, mapping out plans to complete a program, and tracking progress toward completion
- **Counseling and coaching tools** for improving students' connections to support services, such as mental health services and academic tutoring

6 Tyton Partners and Babson Survey Research Group (2016).

BOX 1.1

The iPASS Grant

In 2015, 26 institutions received grants from the Bill & Melinda Gates Foundation and The Leona M. and Harry B. Helmsley Charitable Trust to implement Integrated Planning and Advising for Student Success (iPASS) reforms. In addition to funding, all iPASS grantees received support from EDUCAUSE or Achieving the Dream to support technology integration and redesign of advising services over the three-year grant period. EDUCAUSE is a nonprofit association that supports postsecondary institutions in their use of information technology. Achieving the Dream is a nonprofit organization focused on evidence-based efforts to improve community college students' outcomes. iPASS grantees also had access to professional development opportunities through a broad network of institutions, technology vendors, and technical assistance partners.

Colleges and universities in the iPASS initiative identified individuals across several departments (including Institutional Research and Effectiveness, Information Technology, Student Affairs and Enrollment Management, and Academic Affairs) to plan, manage, and implement the integration of technologies and the advising reform. During the first year, these teams worked with their technical assistance partners to acquire new advising technologies, add new functions to existing technologies, and design advising procedures to use these tools. During the second and third years of the grant, institutions began using the technologies in the context of their revised student support approaches.

- **Risk targeting technology,** such as early-alert and predictive analytics systems, that provide advisers, students, and support staff members with emerging indications of students' academic struggles or predict students' probability of graduation, enabling advisers to connect students with appropriate support

Research on institutional change initiatives in postsecondary education suggests that undertaking an institution-wide strategy is challenging, and it takes time to design and implement.[7] In iPASS, for example, institutions must select new technology, learn how to use it, collect new data, and help faculty and advisers integrate different technology into their practices and ultimately change the way they interact with students.

Early, nonexperimental research on the iPASS initiative, led by the Community College Research Center (CCRC), suggests that some colleges implementing iPASS have made good progress toward integrating technology into their student support practices.[8] But many staff members at iPASS colleges are still thinking through the best ways to improve advising and student support with the help of technology. For instance, for many colleges, questions remain about how to assign advisers, when to intervene with students, and how to communicate with students. Additionally, at many iPASS colleges, not all technology tools are in place, many are only partially integrated with each other

7 Grossman et al. (2015); Mayer et al. (2014); Quint, Jaggars, Byndloss, and Magazinnik (2013).

8 Karp, Kalamkarian, Klempin, and Fletcher (2016).

and with the institutions' previously existing infrastructure, and many staff members are not using the tools to the extent necessary for full iPASS implementation. Large-scale changes are still in their early stages,[9] and there is a growing need to understand how to incorporate technology most effectively into colleges' advising practices.

THE STUDY

To better understand how technology can support advising redesign, MDRC and CCRC partnered with three institutions — California State University, Fresno; Montgomery County Community College in Pennsylvania; and the University of North Carolina at Charlotte. The goal of the project is to refine and extend the colleges' existing iPASS work and study its effects on student outcomes.

The project entailed collaboration between college staff members and researchers to design a two-semester program that extended the institutions' existing iPASS work to a larger group of students with some enhancements. For example, if a college's iPASS work supported the use of a program planning tool, the tool was provided to a new subset of students, combined with additional advising outreach over two semesters. Qualitative and quantitative data were collected to understand how the changes were being implemented and to assess their effects on student outcomes. These data were also used to provide feedback to the institutions, and the qualitative data informed adjustments to the program over the course of the study period.

The study used random assignment to determine who would receive the enhancements and to provide rigorous evidence about the effects of those enhancements. Because the institutions continued to make adjustments over the course of the study period, the study does not evaluate a static program; nor does it seek to evaluate iPASS as a whole at each institution. Instead, this study provides causal evidence about enhancements and feedback from qualitative research to help the institutions make decisions about next steps and to inform the field.

Eligible students were enrolled in the study through passive consent[10] and were randomly assigned to either a program group, which was offered the two-semester enhanced iPASS program, or a control group, which received the institution's typical advising services — a version of unenhanced iPASS. Students in the program group were offered the iPASS enhancements for two semesters, and two cohorts of students from each institution were included in the study sample. The study launched at all three institutions in January 2017; Table 1.1 shows the sample size by research group and institution. In spring 2017, the first cohort — a total of 5,244 students — were randomly assigned in the study. In fall 2017, the second cohort — an additional 2,767 students — were randomly assigned. In total, 8,011 students are in the study sample — 3,760 in the program group and 4,251 in the control

9 Karp, Kalamkarian, Klempin, and Fletcher (2016).

10 The eligibility criteria for the study at each college are presented in subsequent chapters. Passive consent means that students who met the eligibility criteria were automatically enrolled. They were notified of their enrollment over email and were allowed to opt out of having their data collected.

TABLE 1.1 The Study Sample, by Institution and Cohort

INSTITUTION	PROGRAM GROUP	CONTROL GROUP	TOTAL
All institutions			
Cohort 1	2,388	2,856	5,244
Cohort 2	1,372	1,395	2,767
California State University, Fresno			
Cohort 1	302	300	602
Cohort 2	308	309	617
Montgomery County Community College			
Cohort 1	802	1,273	2,075
Cohort 2	446	468	914
University of North Carolina at Charlotte			
Cohort 1	1,284	1,283	2,567
Cohort 2	618	618	1,236
Sample size	3,760	4,251	8,011

group. The impact analyses in this report include data from the first cohort's first semester (spring 2017) and second semester (fall 2017) and the second cohort's first semester (fall 2017).

The key research questions investigated in this report are:

1. How did the colleges enhance their iPASS reforms?
2. Were the iPASS enhancements implemented as intended?
3. Did the iPASS enhancements produce a different experience for students, compared with standard iPASS?
4. Did the enhancements produce short-term gains in student outcomes, compared with standard iPASS?

In addition to rigorous evidence about the impacts of the enhancements, this study provides important lessons from the experiences of these three institutions and their efforts to expand and enhance their iPASS reforms. The findings presented here provide more evidence for how to "do iPASS." The detailed stories from three distinct institutions about the challenges and successes associated with advising reform may resonate with other colleges considering this work. A subsequent report will go into greater detail about the qualitative findings on the institutions' iPASS enhancements.

A final report will document the effects on longer-term student outcomes, using more data from all the student cohorts included in this report.

Data Sources

This report relies on multiple data sources. These include student, administrator, and adviser interviews; iPASS program data, such as early-alert data submitted by faculty members and advising appointment data; and student records, which include students' demographics, key outcome measures like credit accumulation and semester-to-semester enrollment, and other data that capture students' academic progress. See Appendix A for information on qualitative data collection and Appendix B for a full description of all the quantitative data sources.

THE STRUCTURE OF THIS REPORT

The remainder of this report describes iPASS and the enhancements implemented at each college, presents early findings about the effects of the enhancements, and provides some preliminary conclusions. Chapter 2 describes the iPASS framework and theory in more detail and provides more information on the iPASS work leading up to this point. Chapters 3, 4, and 5 describe the design of the program enhancements, their implementation, and their effects at each of the three colleges, as well as some conclusions and next steps for the colleges. Chapter 6 concludes with lessons from the three institutions and implications for the field.

CHAPTER
2

iPASS

THE THEORY BEHIND iPASS

The objective of the iPASS reform is to improve students' short- and long-term academic progress, as measured by students' retention in college and degree completion. The iPASS initiative envisions colleges facilitating this improvement by providing high-quality advising that will help students clarify their goals and make better academic decisions to achieve those goals.[1] This logic is depicted in Figure 2.1.

iPASS Activities

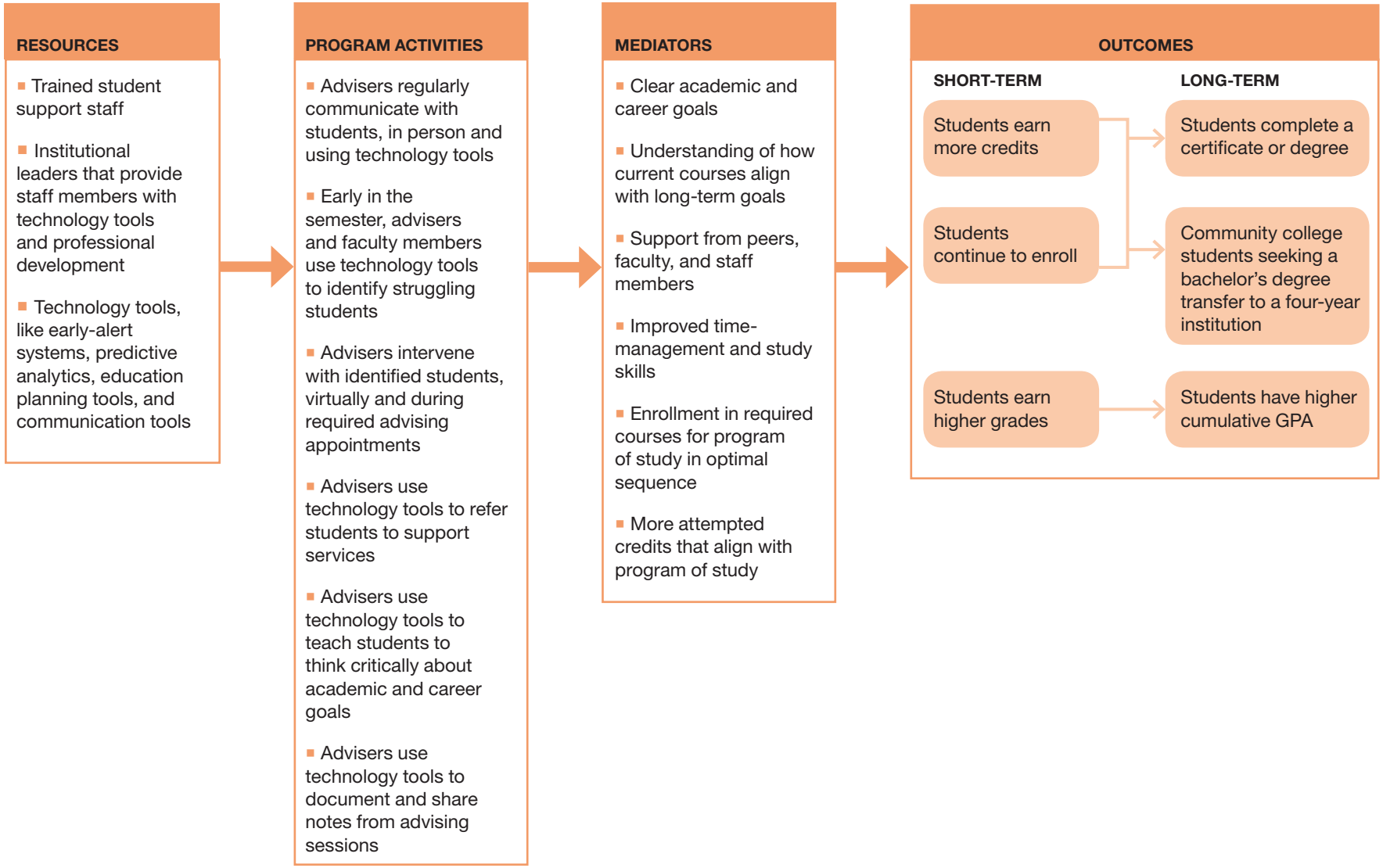
iPASS activities involve sustained support throughout students' academic tenure, including regular communication from advisers to students inquiring about each student's needs and experiences. Advisers and faculty members identify struggling students. For students experiencing academic or nonacademic distress, the goal is for advisers to intervene with emotional and motivational support, guidance, and appropriate referrals. Moreover, advisers coordinate with other support personnel to ensure that students are receiving a coherent and comprehensive intervention. Ideally, advising interactions are personalized — students receive advising that is tailored to their unique circumstances and needs, such as family and work commitments. Finally, advisers teach students the skills they need to navigate college.[2]

At colleges that use iPASS principles, the ideal student advising experience begins with a required meeting with an assigned adviser. The student and adviser discuss degree and career goals and chart a multisemester course plan for achieving those goals. The student also learns about campus services designed to help him or her stay on track and strategies for managing specific academic and nonacademic responsibilities. The student regularly receives messages or phone calls from the adviser or another member of the support staff; the amount and type of contact varies depending on the student's needs. If the student experiences academic or nonacademic distress, the student receives targeted and coordinated communication from the adviser and others.

1 Achieving the Dream (2019).

2 Kalamkarian, Boynton, and Lopez (2018).

FIGURE 2.1 iPASS Logic Model



Using Technology to Enable iPASS Activities

Advising technologies may help enable the intended practices by increasing efficiency and providing data through education planning tools, early-alert systems, predictive analytics, learning management systems, and communication tools. For example, to target interventions to at-risk students, advisers need to know when students are experiencing academic or nonacademic distress. Typically, advisers make this assessment by interacting with students or looking up their grades in a learning management system. Early-alert and predictive analytic tools can make the process of identifying at-risk students more efficient and comprehensive.

Early alerts, predictive analytics, and other risk data can also enable advisers to differentiate interventions depending on the nature and degree of need. Advisers can then 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. Moreover, advisers can use communication tools to electronically refer students to resources that align with their needs, such as tutoring or mental health services. And communication tools make it easier for advisers to send messages with elements of personalization, such as the student's name and information about appropriate campus resources.

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. Advisers can use information about a student's predicted probability of persisting and early indications of academic risk to have a more comprehensive discussion during the advising session about the student's progress and strategies for achieving academic and career goals.[3] In addition, advisers 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, advisers and students can make

3 Klempin, Grant, and Ramos (2018).

multiple plans, allowing students to compare the courses they would need to take to complete a degree for different programs.

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 multisemester 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.[4] The comprehensive student advising experience envisioned in the iPASS model requires time, resources, and continual refinement of structures and practices to achieve.

ENHANCING iPASS AS PART OF THE STUDY

The Community College Research Center (CCRC) and MDRC are studying the implementation and impact of certain iPASS practices at 3 of the 26 institutions that received funding in 2015 to engage in iPASS work. The 26 institutions were at different stages of designing and scaling technology-based advising practices before the award of the grant. California State University, Fresno (Fresno State); Montgomery County Community College (MCCC); and the University of North Carolina at Charlotte (UNCC) were among the strongest implementers of technology-based practices. All three were also interested in further strengthening their advising processes by making enhancements that would accelerate their iPASS reforms.

Fresno State, MCCC, and UNCC each received supplementary funding from the Bill & Melinda Gates Foundation to offset study participation costs (such as time for research-related activities) and to expand their advising staff if necessary. As part of the study, these institutions also received implementation support and coaching beyond what was available to the entire grantee cohort. CCRC and MDRC worked with college administrators and advisers to design the enhancements and to provide training on the enhancement components and operations to staff members implementing the program. The three institutions convened project leaders for additional meetings with the research team and participated in network-building activities together. Over the course of the study period, the institutions aimed to make adjustments to the design and delivery of the enhancements. CCRC and MDRC continued to provide technical assistance through site visits, regular phone calls, and feedback on advising materials through the spring 2018 semester.

4 Karp, Kalamkarian, Klempin, and Fletcher (2016).

The next three chapters in this report provide an overview of the technology-based advising practices supported by the 2015 iPASS grant as well as the enhancements at each of the three institutions included in this study. In general, for this study, all three institutions increased their use of advising technology to gather more precise and timely information about students' academic or career goals and any academic or nonacademic factors that might hinder their academic progress. All three institutions also implemented targeted support from advisers and other staff members that was informed at least in part by data gathered using technologies adopted through iPASS. For example, for this study, the institutions expanded use of their early-alert tools to find out how students in the program group were performing at an earlier point in the semester. The institutions also implemented more intensive tactics for engaging flagged students, such as personalized communication with information on applicable resources.

One of the primary ways institutions prompted students to engage with targeted support was by requiring at least a subset of students in the program group to meet with an adviser at least once; institutions placed registration holds on these students to motivate them to make an advising appointment. Moreover, institutions aimed to motivate a high-quality advising session by encouraging advisers both to talk about challenges students might be facing and to lead a discussion of academic and career goals based on data such as early alerts. For this purpose, each institution designed a college-specific "toolbox." The toolbox outlines three to four learning outcomes for students focused on information, skills, and cognitive development; topics for discussion; and questions for each topic that advisers may consider using to engage students.[5] The toolbox also reminds advisers to check whether students have early-alert flags or unsatisfactory midterm grades and to use these data, as needed, to prompt the discussion of successes or challenges. The toolbox is intended to help advisers take a pedagogical approach that focuses on teaching students academic and technical skills and supports their development of academic and career goals and a plan for achieving those goals.

5 Wilcox (2016).

CHAPTER
3

California State University, Fresno

California State University, Fresno, known as Fresno State, is a large, urban, public four-year institution comprising eight colleges and serving about 21,500 undergraduate students, as shown in Table 3.1. A majority of students enrolled at Fresno State attend full-time (88 percent of undergraduates in fall 2016). It is a designated Hispanic-Serving Institution; nearly half the students identify as Hispanic. About 20 percent of students are white, 14 percent are Asian, and only a small portion are black or African-American. Fresno State serves a large number of students from low socioeconomic backgrounds; about 87 percent of full-time, first-time undergraduate students at Fresno State in the 2016-2017 school year were awarded any financial aid. While only 15 percent of students complete a bachelor's degree within four years, the graduation rate rises to 52 percent within six years.

This chapter explains Fresno State's standard advising process ("unenhanced iPASS") and how it was enhanced for the study. It then describes the students in the study sample and reports on the implementation of enhanced iPASS: whether it was conducted with fidelity to its design and how the experience of students in the program group contrasted with that of students in the control group. The chapter concludes with early findings on academic outcomes.

iPASS AND STANDARD ADVISING AT FRESNO STATE

Each of Fresno State's eight colleges has a separate advising office; the University Advising Center serves undergraduates who have not declared a major. While some policies and practices vary by college, Fresno State requires students to meet with an adviser before registration during their second semester of enrollment, and then again after they have achieved a minimum of 75 credits, usually during their junior year. Other advising touchpoints are typically not required unless the student is on academic probation, which occurs when a student has a grade point average (GPA) lower than 2.0. Advising appointments at Fresno State are most often scheduled for 30 minutes. Students are typically not assigned a specific adviser; they may see a different adviser each time they seek support, which may make it difficult for a student and an adviser to build a connection.

TABLE 3.1 Institutional Characteristics, California State University, Fresno, Fall 2016

CHARACTERISTIC	VALUE
Overview	
Degree of urbanization	Large city
Level of institution	Four-year and graduate
Open admission policy	No
Fall enrollment	
Total students	24,405
Total undergraduates	21,530
Undergraduate status (%)	
Full-time	87.5
Part-time	12.5
Race/ethnicity of undergraduates (%)	
American Indian or Alaska Native	0.3
Asian	14.3
Black or African-American	3.0
Hispanic	49.3
Native Hawaiian or other Pacific Islander	0.2
White	19.9
Two or more races	2.8
Race/ethnicity unknown	4.7
Nonresident alien	5.6
Financial aid status of undergraduates (%)	
Awarded Pell Grant	57.4
Full-time first-time students awarded any financial aid	87.4
Outcomes	
Retention rates[a] (%)	
Full-time	79.0
Part-time	47.0
Completion rate of degree/certificate[b] (%)	
100% of normal time	15.0
150% of normal time	52.0
200% of normal time	60.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 2016-2017.

NOTES: [a]This represents first- to second-year retention rates of first-time students in fall 2016.
[b]Completion rates are calculated for a four-year bachelor's degree (4, 6, and 8 years).

The university originally implemented technology-based advising practices to offer support sooner to students who may be struggling, before they reach credit milestones that trigger a required intervention. In 2012, the university began using Grades First, a student support software platform that allows the university to identify students who are struggling academically by deploying surveys to faculty members during the seventh week of the semester that can generate early alerts. Grades First also allows advisers to enter notes from advising sessions into the platform, so other advisers can check what their colleagues discussed with students in a previous session and build on that guidance, even if it is a particular adviser's first time directly engaging with the student.

With the 2015 iPASS grant, Fresno State also launched U.Achieve and U.Direct technologies, which are intended to ensure that students at all stages of enrollment have a clear sense of what courses they need to take to get and stay on track to graduation. U.Achieve is a degree audit tool that allows students and advisers to see how courses taken to date apply to the sequence necessary for completion of a degree. U.Direct, commonly known at the university as MyDegreePlan, allows students to map the courses they need to take for their program of study each semester until graduation.

ENHANCEMENT DESIGN

At the start of this study, the university's advising technologies had not been fully integrated into advising practices. Recording of notes in Grades First varied widely by adviser. Faculty response rates to university-wide early-alert surveys were low, often less than 25 percent. Consequently, only a small subset of students received an automatically generated early-alert notification. Moreover, while MyDegreePlan was available to all students, there was no university-wide effort to promote awareness of it; generally, students who learned about the tool could use it, but advisers and administrators did not reach out to students and orient them to the tool.

Fresno State aimed to further develop use of advising technologies, specifically by deploying early alerts more effectively to identify students experiencing academic or nonacademic distress, and then offering support that would be responsive to each student's unique needs. The university also wanted students to have a complete education plan and for advisers to use MyDegreePlan to help students figure out what pathway they wanted to take and how to stay on track.

To achieve these objectives, the university designed enhanced advising practices for initial use with the subset of the target population randomly assigned to the program group.[1] Enhanced advising for students in the program group included general and targeted communications, an offer of training for students on MyDegreePlan, and a required advising session.

Program group students were invited to attend workshops at the start of the semester in which they could complete course plans using MyDegreePlan. Students were notified of these workshops via email and phone calls from two peer mentors hired each semester specifically for this study. The

1 The target population and study sample are further defined in the next section.

workshops were offered in person for the first cohort of program group students and online for the second cohort.

During Weeks 5 and 10 of the semester, Fresno State disseminated two additional early-alert surveys via GradesFirst to faculty members who taught students in the program group. These surveys presented faculty members with a list of their students in the program group and requested that they identify any students who were exhibiting signs of poor performance in class. Flagged students received an automated notification from GradesFirst saying that they had been evaluated as being at risk.

The two peer mentors hired for the study conducted outreach to all students in the program group and targeted calls to students seen as at risk.[2] Each peer mentor was assigned approximately half the program group (about 300 students across the two cohorts). At the start of the semester, the peer mentors were instructed to call and email their assigned students to remind them to schedule appointments with advisers. The peer mentors were also instructed to reach out to students who received one early alert after each survey. During each round of outreach, the peer mentors were asked to call students first; if they were unsuccessful at reaching a student by phone, they were to do two follow-ups by email and phone. Students who received multiple flags were expected to need more professional intervention, so the university directed advisers to call those students.

Finally, the university also placed a registration hold on all students in the program group, which required them to meet with an adviser for a longer than normal session — one hour — before registering for courses for the next semester. The longer session was intended as an opportunity for advisers to engage students in a discussion about their pathway to their long-term goals, using the advising "toolbox" as a guide. The toolbox reminded advisers to use the risk data about each student that had been gathered through the early-alert surveys and peer mentor calls, and to work with students to address the academic and nonacademic issues that may have been hindering their progress. To facilitate a discussion about students' progress toward their long-term goals, the toolbox also reminded advisers to review students' MyDegreePlan — which students were expected to have completed after attending a MyDegreePlan workshop at the start of the semester.

Table 3.2 summarizes the iPASS enhancement components and how they compare with the college's standard courses and services (unenhanced iPASS).

TARGET POPULATION

Fresno State participated in this study to improve support for students who, at the start of their second year of enrollment, had a GPA between 2.0 and 2.9 and had completed more than 15 but fewer than

2 The peer mentors were third-year undergraduate students at the start of the study. They received training in advising technologies and developmental advising practices. They were supervised by the adviser overseeing the study. Peer mentors tracked each attempt to reach a student. The adviser reviewed the tracking sheet and on several occasions observed the peer mentors while they called and spoke with students.

TABLE 3.2 Summary of Enhanced and Standard Advising Models, California State University, Fresno

COMPONENT	ENHANCED ADVISING	STANDARD ADVISING
Informational communication	Message welcoming students to semester, announcing MyDegreePlan workshops	No welcome message required, though some advisers may send one
Targeted communication	Early-alert messages at Weeks 5, 7, and 10 informing students of flags in specific courses	Early-alert message at Week 7 informing students of flags in specific courses
	Call from peer mentor reminding students to sign up for MyDegreePlan workshop	No peer mentor phone calls regarding MyDegreePlan
	Call from peer mentor checking in on flagged students	No peer mentor phone calls to check in on flagged students. Email or call from Support Net staff for flagged students; process and criteria for outreach vary by college.
	Call from peer mentor reminding students to sign up for advising appointment	No peer mentor phone calls reminding students to sign up for advising appointment
	Call from peer mentor reminding students about upcoming advising appointment	Peer mentor phone calls at one of eight colleges reminding students about upcoming advising appointment
Advising sessions	Mandatory advising	Advising required only for students who are in their freshman year, have reached 75 credits, or are on academic probation
	Email campaign sent by adviser to schedule appointment	Walk-in or scheduled appointments initiated by student
	One-hour session	30- to 45-minute advising session (varies by college)
	Adviser toolbox to guide advising session	No adviser toolbox to guide advising session
Training for students on MyDegreePlan	One-hour workshop on MyDegreePlan, with opportunity to complete degree plan with facilitators	No targeted in-person training on MyDegreePlan

SOURCE: Kalamkarian, Boynton, and Lopez (2018).

75 credits.[3] These students typically engage with an adviser only if they seek out advising. There are no policies or institutionalized practices for proactive outreach to such students, except for those enrolled in a few majors that are in high demand, such as nursing, and those in special programs like athletics or the Educational Opportunity Program.

As shown in Table 3.3, students in the program and control groups were similar in terms of gender, race, age, educational history, academic performance at the time of study enrollment, Pell Grant eligibility, and first-generation status. About 60 percent of the sample are women, and a majority of students are Hispanic. Almost all students in the sample obtained a high school diploma or General Educational Development (GED) certificate. On average, students in the sample had earned 44 college credits and had a GPA around 2.55 at the start of the study. About 90 percent of the sample were of traditional student age (19-24). About two-thirds of the students in the sample were eligible for federal Pell Grants, and almost half the students were the first in their families to attend college. The first cohort of students enrolled at Fresno State in fall 2015, and the second cohort in fall 2016.

IMPLEMENTATION FIDELITY AND SERVICE CONTRAST

- **Advisers informed program group students about MyDegreePlan and held degree planning workshops as intended. However, student participation in the workshops was low.**

During the spring 2017 semester, the university held 10 workshops as intended; over half the program group students attended a workshop. In fall 2017, these workshops were offered online instead, to reduce the time advisers had to devote to administering them. Less than 20 percent of the second cohort of program group students participated in an online training session. Regardless of whether students participated in the workshops, however, they opted to wait until meeting with an adviser to create a plan, both advisers and students reported.

- **Early-alert progress surveys were sent to faculty members during Weeks 5 and 10. These provided lists of students in the program group only and requested that instructors raise flags for these students if warranted by their academic progress.**

As shown in Table 3.4, a significantly higher proportion of students in the program group than in the control group received an early-alert flag (about 35 percent compared with 6 percent) in the first semester. These data suggest that, as intended, the enhancements to the early-alert process helped the university identify students in the program group who were showing signs of struggling academically.

- **The university experienced some challenges implementing interventions for students who received early-alert flags.**

3 The eligibility criteria were adjusted for the second cohort to include students with a GPA between 2.0 and 3.1.

TABLE 3.3 Demographics of the Sample, California State University, Fresno

CHARACTERISTIC	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
Female (%)	61.4	62.0	-0.6	2.8
Race/ethnicity (%)				
Hispanic	63.2	61.8	1.4	2.8
White	12.4	11.9	0.5	1.9
Black	3.2	2.3	0.8	0.9
Other	21.2	24.0	-2.7	2.4
Obtained a high school diploma or GED[a] (%)	99.7	99.5	0.2	0.4
College credits earned at study enrollment	44.40	44.29	0.11	0.70
Grade point average at study enrollment	2.57	2.54	0.03	0.02
Age (%)				
18 or under	10.9	10.1	0.9	1.8
19-24	89.1	89.9	-0.9	1.8
25 or over	0.0	0.0	0.0	0.0
Eligible for federal Pell Grant (%)	67.8	65.7	2.2	2.7
First person in family to attend college (%)	49.1	49.4	-0.2	2.9
Sample size (total = 1,219)	610	609		

SOURCE: MDRC calculations using demographic data from California State University, Fresno.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Sample sizes vary because of missing values.
[a]A General Educational Development (GED) certificate is a high school equivalency credential.

Peer mentors were used for students in the program group who received only one flag. The peer mentors called students but were often unable to reach them by phone. Peers left messages describing the purpose of their calls and providing their contact information. Peer mentors followed up with students via email and subsequent calls at least twice after the initial call if the student was not available, but few students emailed or called back. In addition, peer mentors expressed more nervousness about calling their peers than expected. Consequently, these calls generally focused on reminding students about various pieces of the enhancements, such as the advising session, and less about discussing potential barriers to success, especially in the beginning.

TABLE 3.4 Differences in Early Alerts, California State University, Fresno

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Had any early alerts (%)	34.9	5.8	29.1***	2.2
Number of early alerts[a]	0.57	0.08	0.49***	0.04
Sample size (total = 1,219)	610	609		
Second semester				
Had any early alerts (%)	31.5	8.3	23.1***	3.1
Number of early alerts[a]	0.54	0.10	0.44***	0.06
Sample size (total = 602)	302	300		

SOURCE: MDRC calculations using early alerts data from California State University, Fresno.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Alerts in spring and summer semesters are combined.
The second cohort is not included in the second semester analysis.
[a]Due to limitations in the data reported, no more than one early alert per student is counted each day.

When asked about the phone calls from peer mentors, several of the students in the program group said they had not received calls or messages. Those who did report receiving calls characterized them, as one student put it, "only reminders of just to come in" and meet with an adviser. Overall, the university recognized early in the study that the peer mentorship component of the intervention needed improvement.

Advisers were asked to call students who had multiple early-alert notifications. Fewer than 20 students received multiple flags, so this enhancement was seldom applied.

- **The enhancements resulted in a substantial increase in the number of students who had contact with an adviser.**

Almost all students in the program group had contact with an adviser at least once, as shown in Table 3.5. In comparison, less than half the students in the control group had contact with an adviser during the same period. Advisers noted that sessions with program group students often lasted for an hour or more and at a minimum took 45 minutes, substantially longer than the typical advising appointment experienced by students in the control group who opted to meet with an adviser. Advisers agreed that the extra time made a detailed discussion about academic and career pathways possible, but they cautioned that it would be difficult to implement for more students, given the large number of students assigned to each adviser.

TABLE 3.5 Differences in Advising Appointments, California State University, Fresno

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Had contact with an adviser (%)	96.9	44.1	52.8***	2.1
Had in-person contact with an adviser[a] (%)	66.9	31.0	35.9***	2.7
Number of advising contacts[b]	1.93	0.73	1.20***	0.07
Number of contacts with adviser[b] (%)				
0	3.1	55.9	-52.8***	2.1
1	41.6	28.4	13.2***	2.7
2-3	46.5	12.9	33.7***	2.4
4 or more	8.8	2.8	6.0***	1.3
Sample size (total = 1,219)	610	609		
Second semester				
Had contact with an adviser (%)	91.5	48.9	42.6***	3.2
Had in-person contact with an adviser[a] (%)	62.5	34.1	28.4***	3.9
Number of advising contacts[b]	1.38	0.72	0.66***	0.08
Number of contacts with adviser[b] (%)				
0	8.5	51.1	-42.6***	3.2
1	61.5	32.1	29.3***	3.9
2-3	26.4	16.1	10.2***	3.3
4 or more	3.7	0.6	3.1***	1.2
Sample size (total = 602)	302	300		

SOURCE: MDRC calculations using advising data from California State University, Fresno.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Advising contacts and notes in spring and summer semesters are combined.
The second cohort is not included in the second semester analysis.
[a]Many advisement contact records did not contain data on whether advisement was conducted in person, over the phone, or over email. As a result, the percentage of students with in-person contact with an adviser is underreported.
[b]Due to limitations in the data reported, no more than one advising contact per student is counted each day.

- **Advisers generally described discussions with students that adhered to the enhancement design.**

All advisers who were interviewed affirmed that when meeting with a student in the program group, especially for the first cohort of students, they worked with the student to set up a MyDegreePlan. Advisers had discretion on how many semesters they helped students plan ahead; most said they worked with students to plan through the subsequent academic year.

- **Advisers described addressing each of the topics listed in the toolbox, though there was variation in how they integrated this tool into the advising practice.**

Most described feeling comfortable with the objectives listed in the toolbox after the first few advising appointments with program group students and referring to the toolbox as needed for a refresher. Others used the toolbox during most advising sessions to ensure that each of the main topics was addressed.

- **Advisers noted differences, and some similarities, in their advising sessions with the two study groups.**

Advisers met with more of the program group students than control group students and identified two main ways advising sessions with program group students differed from sessions with control group students. First, the extended length of the advising session coupled with a few of the more detailed questions in the advising toolbox allowed them to probe more deeply into students' academic and nonacademic experiences. Second, MyDegreePlan was used for degree-planning purposes primarily with program group students. Despite these differences, advisers noted that often conversations with program and control group students felt similar, because if control group students met with an adviser and volunteered details that suggested the need for additional intervention, advisers readily provided support or made relevant referrals. Moreover, several advisers stated that they often integrated a few of their favorite questions from the toolbox into all their advising sessions, so these particular questions may have been used for a small proportion of students in the control group.

- **Fresno State used first-semester lessons to improve enhanced iPASS in the second semester.**

After the first semester of the study, the university took steps to learn from its early experiences and strengthen the enhancements. One lesson from the first semester of implementation was that peer mentors were diligent about calling students but were unsure about how to discuss students' academic experiences. As a result, the calls from peer mentors largely served as reminders for other components of the intervention, such as the advising appointments. Between the first and second semesters of the intervention, peer mentors received professional development from project leaders, the research team, and campus resources to help them feel more comfortable engaging students during phone conversations. Peer mentors also received ongoing support and supervision from project leaders.

In addition, the university revised the initial peer mentor communications to students in the program group. Instead of combining the peer mentor introduction with information about the required advising appointment, the new protocol covered the topics in two distinct messages. Project leaders

made this change in an effort to be clearer with program group students about the role of the peer mentors at the university.

Fresno State also worked in collaboration with the research team to update the toolbox for use during the second semester. Originally, the toolbox focused on ways to use MyDegreePlan to build a new plan. The revised toolbox contained directions on how to use the previous semester's data from MyDegreePlan during advising appointments: for instance, engaging students about changes in their academic and career interests and the modifications such changes would necessitate to their degree plan.

EARLY FINDINGS ON STUDENT OUTCOMES

Overall, the enhancements to iPASS did not have a discernible effect on students' academic performance. The enhancements produced some positive and some negative but generally statistically insignificant estimated effects on early measures of student outcomes. As shown in Table 3.6, after two semesters of the intervention, students who received the enhancements had earned 23.40 credits and students in the control group had earned 22.89 credits, a difference of 0.52 credits that is not statistically significant. Persistence rates were high in both groups, as expected for continuing students at a four-year university. Most of the first cohort returned for a second semester — 93 percent of students in the program group and 94 percent of students in the control group. However, large proportions of students in both groups received a D or an F in any class: 67 percent of students who received the enhancements for two semesters earned a D or an F in at least one class, compared with 70 percent of the control group, a difference that is not statistically significant.

TABLE 3.6 Differences in Credits Attempted and Earned, California State University, Fresno

OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Registered in any course (%)	98.5	98.9	-0.4	0.3
Total credits attempted	13.60	13.56	0.04	0.13
Total credits earned	11.97	11.72	0.25	0.22
Received a D or F in any course (%)	52.1	49.2	2.9	2.8
Withdrew from any course (%)	6.9	6.4	0.6	1.4
Sample size (total = 1,219)	610	609		
Second semester				
Registered in any course (%)	92.6	94.1	-1.4	2.0
Total credits attempted	13.09	13.17	-0.08	0.33
Total credits earned	11.52	11.29	0.22	0.40
Received a D or F in any course (%)	44.8	49.5	-4.7	4.1
Withdrew from any course (%)	10.9	9.1	1.8	2.4
Sample size (total = 602)	302	300		
Cumulative semesters				
Total credits attempted	26.77	26.78	-0.01	0.43
Total credits earned	23.40	22.89	0.52	0.62
Received a D or F in any course (%)	66.6	70.3	-3.7	3.8
Withdrew from any course (%)	15.9	13.7	2.2	2.9
Sample size (total = 602)	302	300		

SOURCE: MDRC calculations using transcript data from California State University, Fresno.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Spring and summer semester transcript records are combined.
The second cohort is not included in the analysis of the second and cumulative semesters.

CHAPTER
4

Montgomery County Community College

Montgomery County Community College (MCCC) is a two-year college with campuses in suburban Blue Bell and Pottstown, Pennsylvania.[1] As Table 4.1 shows, the college enrolled 11,480 students in fall 2016. Only about one-third of students were attending full time, a much lower percentage than at the four-year institutions in the study. Two-thirds of full-time students were receiving any financial aid, and 28 percent of students were receiving Pell Grants. The majority of students were white, 14 percent were black or African-American, and smaller proportions were Hispanic and Asian.

MCCC, like most community colleges, is an open-admission institution, meaning that any student with a high school diploma or the equivalent can enroll. Community college students often face academic challenges as well as nonacademic ones, like balancing work and school.[2] They also have lower overall rates of persistence and graduation than students at four-year institutions.[3] At MCCC, only 8 percent of students earn a degree or certificate within two years, and only 26 percent do so within four years (Table 4.1). About two-thirds of students who enter community colleges are assessed as being underprepared for college-level work. Traditionally, these students must complete noncredit developmental (remedial) education course sequences before enrolling in certain college-level, credit-bearing courses; however, this practice has changed in several states.[4]

This chapter explains MCCC's standard advising process and how its work under the iPASS grant was enhanced for the study. The chapter then describes the students in the study sample and reports on the implementation of enhanced iPASS: whether it was conducted with fidelity to its design and how the experience of students in the program group contrasted with that of students in the control group. The concluding section presents early findings on academic outcomes.

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1 MCCC also has a Culinary Arts Institute in Lansdale, Pennsylvania.

2 Bailey, Jeong, and Cho (2010). Compared with students attending four-year institutions, community college students are more likely to work while attending college. See Ma and Baum (2016).

3 National Student Clearinghouse Research Center (2018).

4 Bailey, Jeong, and Cho (2010).

TABLE 4.1 Institutional Characteristics, Montgomery County Community College, Fall 2016

CHARACTERISTIC	VALUE
Overview	
Degree of urbanization	Large suburb
Level of institution	Two-year
Open admission policy	Yes
Fall enrollment	
Total students	11,480
Undergraduate status (%)	
Full-time	32.9
Part-time	67.1
Race/ethnicity of undergraduates (%)	
American Indian or Alaska Native	0.3
Asian	5.7
Black or African-American	14.3
Hispanic	6.2
Native Hawaiian or other Pacific Islander	0.3
White	59.3
Two or more races	3.0
Race/ethnicity unknown	9.3
Nonresident alien	1.6
Financial aid status of undergraduates (%)	
Awarded Pell Grant	27.5
Full-time first-time students awarded any financial aid	63.7
Outcomes	
Retention rates[a] (%)	
Full-time	65.0
Part-time	48.0
Completion rate of degree/certificate[b] (%)	
100% of normal time	8.0
150% of normal time	20.0
200% of normal time	26.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 2016-2017.

NOTES: [a]This represents first- to second-year retention rates of first-time students in fall 2016.
[b]Completion rates are calculated for two-year degrees or certificates.

iPASS AND STANDARD ADVISING AT MCCC

MCCC students are assigned to professional advisers with expertise in their specific majors.[5] Academic advising and student support services are centrally located in "student success centers" on each of the college's campuses.

Staff members and administrators at MCCC had worked for several years before this study to revamp the college's advising services. As part of this work, the college used previous iPASS grants to adopt several technology platforms to support advising:

- Starfish Connect, which advisers and students use to schedule advising appointments and advisers use to store notes from advising sessions
- Starfish Early Alert, which faculty members use to manually flag students enrolled in their courses who are struggling academically and to report midterm grades
- Ellucian's student educational planning tool
- Civitas Illume, a predictive analytics tool, which assigns students a "risk score" based on their predicted likelihood of not persisting to the next semester
- A custom tool created in partnership with Blackboard that aggregates various data sources to give students a snapshot of their academic standing (including their GPA and the number of credits they have completed) when they log into their online student portal

All these tools were available campus-wide at the time of this study and were used to varying degrees.

Some MCCC students are required to meet with an adviser. At the time this study began, first-semester students and those on academic probation had to meet with an assigned adviser before registering for courses. This requirement was intended to support students and ensure they engaged with the college's services. It was implemented through a registration hold that prevents students from registering for classes (or making any changes to their registration status) until they meet with their adviser, after which the adviser manually removes the hold.

Most continuing students in degree programs (the majority of students) do not have any advising requirements and often do not voluntarily seek out advisers; they are thus less likely to engage with any advising services or experience the college's efforts to revamp advising. Advising appointments that do occur are scheduled for 30 to 45 minutes and do not follow a specified format. Midway through the semester, faculty members are asked to use the early-alert tool to flag struggling students. Students who are flagged receive automated emails informing them that their professors have flagged them. Generally, advisers are not required to provide personalized outreach to supplement the automated emails.

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5 Undecided students declare a major in liberal studies.

ENHANCEMENT DESIGN

MCCC's iPASS enhancements were designed to make advisers' communications and meetings with students more frequent, timely, and personalized. Multiple methods were used to provide advisers and students with more data on students' academic status and career aspirations:

- Faculty members teaching classes that program group students were enrolled in were asked to complete an early-alert survey earlier in the semester (in addition to the typical midterm survey). As with the midterm survey, advisers and students were automatically notified if an alert had been issued for a student.
- Program group students were surveyed and asked to self-report academic and nonacademic issues that could impede their academic progress.
- Program group students were asked to complete a career assessment to provide the basis for conversations with advisers about their long-term academic and career goals.

Advisers were asked to use these data to intervene with students over email and in person. They were also provided with tools, such as email templates, to help them suggest personalized academic strategies (for example, going to a professor's office hours for additional help) and make referrals to program group students with early and midterm alerts, as well as to help them to provide personalized feedback to students who completed the self-report survey.

The main in-person intervention was a required, semistructured, 45-minute advising appointment during students' first semester in the program, followed by a 30-minute required appointment for students in their second semester who struggled academically in their first semester.[6] The advising sessions were intended to occur before registration opened for the following semester. The requirement to meet with advisers was enforced through a registration hold — consistent with how the college enforced required appointments for first-semester students and students on probation. Students in the program group were to meet with an adviser before registering, and the adviser was to help them address any issues and take steps to improve their performance in their current courses.[7] Advisers were provided with a "toolbox" — a list of open-ended, guiding questions designed by college staff members and members of the research team. The toolbox included prompts to aid advisers in addressing students' academic progress, long-term educational and career plans, and any nonacademic issues, using the new data collected as part of the enhancement. To support an informed career planning conversation, program group students were asked to complete a career assessment before

6 Students in the first cohort had a required appointment in their second semester if they received a D, F, or W (withdrawal) in any class in their first program semester; had a single-term GPA of 3.0 or lower in their first program semester; or had a cumulative GPA of 3.0 or lower. Students in the second cohort had a required appointment if they received a D, F, or W in any class in their first program semester.

7 The hold prevented program group students from making any changes to their registration status and was placed immediately after random assignment for all first-semester program group students and immediately after the first add/drop deadline for a subset of second-semester students. Advisers removed the hold immediately following the required appointment.

scheduling the required advising appointment and were unable to have the required appointment until they finished the assessment.

Advisers reached out to students periodically, usually by email, about the registration hold and encouraged them to schedule their required appointment. Program group students also received informational messages (via the college's learning management system) to inform them of — and prompt them to take advantage of — various on-campus resources, like tutoring, child care, and scholarship opportunities.

Table 4.2 summarizes the iPASS enhancement components and how they compare with the college's standard courses and services (unenhanced iPASS).

TARGET POPULATION

MCCC's iPASS enhancements focused on a group of students who were generally not receiving the college's existing iPASS services: at-risk continuing students in a degree program who were not already required to meet with an adviser.[8] Students eligible for the study were determined to have a "low" or "moderate" likelihood of persisting to the next semester, based on the predictive analytics algorithm the college was using.[9] Focusing on this group allowed the college to extend its redesigned advising services to a larger proportion of its student population, based on data that suggested they could benefit from the enhancements. Eligible students were randomly assigned either to the control group, who would receive the college's standard advising services for degree-seeking, continuing students, or to the program group, who received the college's iPASS enhancements.[10]

Table 4.3 indicates that the study sample shares many demographic characteristics of the institution's student population (Table 4.1). More than half the sample are women, and about 56 percent of the sample are white. Eighty-six percent of the study sample were attending part-time, which is a higher percentage than among MCCC's general college population. While most of the sample were between the ages of 19 and 24, about 40 percent were older. Overall, the measured characteristics of the program and control groups were similar at the outset of the study, as is expected in a large-scale randomized experiment.

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8 Continuing students who already had advising requirements, like veterans and students on probation, were not eligible for the study.

9 As mentioned above, the college used Civitas Learning's Illume predictive analytics tool. The tool's algorithm is proprietary, so the exact variables included are not publicly available.

10 Since advisers already have large caseloads, only a portion of each adviser's students were randomly assigned to the program group and the total number was capped. See Appendix B for more details.

TABLE 4.2 Summary of Enhanced and Standard Advising Models, Montgomery County Community College

COMPONENT	ENHANCED ADVISING	STANDARD ADVISING
Informal communication	Message welcoming students to semester, requesting completion of self-report survey	No welcome message required, though some advisers may send one
	Message instructing students to complete MyCareerPlan	No message about completing MyCareerPlan
	Automated early-alert message at Week 3 informing students of their progress in specific courses	No Week 3 early-alert message
	Message requesting completion of second self-report survey	No self-report surveys
	Message wishing students good luck on finals	No good luck or end-of-semester message required, though some advisers may send one
	Series of "Did you know?" general informational messages throughout the semester	No "Did you know?" messages
Targeted communication	Message responding to early-alert surveys	Practice varies by adviser
	Message responding to self-report survey results	Self-report surveys not administered
	Message responding to midterm grades	Practice varies by adviser
Advising sessions	Mandatory advising for all students during their first program semester and a subset of students during their second program semester	Advising not required for students who are beyond their first semester at the college and not on probation
	Advisers send messages to students to schedule appointment	Walk-in or scheduled appointments initiated by student
	45-minute session	30- to 45-minute advising session (varies by appointment reason)
	Adviser toolbox with eight core performance areas to guide advising session	No adviser toolbox to guide advising session

SOURCE: Kalamkarian, Boynton, and Lopez (2018).

TABLE 4.3 Demographics of the Sample, Montgomery County Community College

CHARACTERISTIC	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
Female (%)	59.9	58.6	1.3	1.8
Race/ethnicity (%)				
Hispanic	7.5	7.3	0.3	1.0
White	55.8	56.5	-0.8	1.8
Black	18.3	17.8	0.5	1.4
Other	18.4	18.4	0.0	1.4
Obtained a high school diploma or GED[a] (%)	92.1	91.1	1.1	1.0
College credits earned at study enrollment	38.51	37.44	1.07	0.99
Grade point average at study enrollment	2.58	2.60	-0.02	0.03
Enrollment status[b] (%)				
Full-time	11.9	11.3	0.6	1.2
Less than full-time	85.2	85.8	-0.6	1.3
Not registered	2.9	2.8	0.1	0.6
Age (%)				
18 or under	4.4	4.6	-0.2	0.8
19-24	53.8	55.9	-2.1	1.8
25 or over	41.8	39.5	2.3	1.8
Eligible for federal Pell Grant (%)	16.4	15.5	0.9	1.3
First person in family to attend college (%)	33.8	34.1	-0.3	1.7
Sample size (total = 2,989)	1,248	1,741		

SOURCE: MDRC calculations using demographic and transcript data from Montgomery County Community College.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are weighted to account for differences in random assignment ratios across advisers.
Sample sizes vary because of missing values.
[a]A General Educational Development (GED) certificate is a high school equivalency credential.
[b]Students' enrollment statuses are based on the number of credits they attempted in the first semester after study enrollment. All other measures presented in this table are based on pre-study enrollment data.

IMPLEMENTATION FIDELITY AND SERVICE CONTRAST

- **Advisers expressed concerns with the predictive analytics software that identified the sample.**

As explained above, the college used its predictive analytics software to identify at-risk students for the study. Advisers, however, reported that it was difficult to intervene with some students because it was not clear why they had been determined to be at risk. The software assessed some students as "at risk" who had high GPAs, were close to graduation, or had already earned degrees but were taking additional classes. The mismatch for these students was not discovered until students showed up for their appointments, frustrated by the registration hold. Consequently, though the predictive analytics system was used to identify the study sample for both cohorts, it was not used to assess students' risk during the second semester of the study. Instead, at-risk status, which prompted a required appointment in students' second program semester, was determined by students' performance in their first program semester. This was intended to provide advisers with a more tangible basis on which to intervene with students.

- **Advisers received more data on students in the program group than on students in the control group in the first semester, but not all students completed their assessments.**

Faculty members completed the additional early-alert survey and increased the percentage of students who received an early alert indicating concern from 42 percent in the control group to 51 percent in the program group in the first semester, as shown in Table 4.4. In the second semester, there was not a significant difference in the percentage of students who received an early alert indicating concern.

Advisers said they enforced the requirement that program group students complete the career assessment before their required appointment. Advisers reported, however, that some students (including nontraditional students) were frustrated by the career assessment requirement: It was time consuming and seemed unnecessary to those close to graduation, or who had already defined a career trajectory. Still, a few advisers mentioned that the career assessment led to productive conversations with students. Over the course of both semesters in the study, 50 percent of program group students in the first cohort completed the career assessment and met with an adviser for the required appointment (not shown). Few program group students, however, completed the preappointment self-report survey, which was not required.

- **The program increased outreach to students about academic issues.**

Table 4.4 shows that students in the program group had more than twice as many early alerts indicating concern, referrals, or to-do items as students in the control group — 87 percent compared with 42 percent in the first semester, and 49 percent compared with 23 percent in the second semester. Early alerts, referrals, and to-do items all generate automated messages, indicating that students in the program group were sent more outreach about their academic progress than students in the control group.

Based on interview and program monitoring data, advisers sent personalized emails to all program group students for whom alerts were issued. Advisers reported that these emails included more

TABLE 4.4 Differences in Early Alerts, Montgomery County Community College

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Had any early alerts indicating concern (%)	51.3	42.3	9.0***	1.8
Had any early alerts indicating concern, referrals, or to-do items (%)	87.1	42.3	44.8***	1.5
Number of early alerts indicating concern	1.36	0.85	0.51***	0.06
Number of early alerts indicating concern, referrals, or to-do items	2.40	0.85	1.55***	0.07
Number of early alerts indicating concern, referrals, or to-do items (%)				
0	12.9	57.7	-44.8***	1.5
1	29.5	22.5	7.0***	1.6
2-3	36.4	14.4	22.0***	1.5
4 or more	21.1	5.4	15.8***	1.2
Sample size (total = 2,989)	1,248	1,741		
Second semester				
Had any early alerts indicating concern (%)	24.4	22.1	2.3	1.8
Had any early alerts indicating concern, referrals, or to-do items (%)	48.8	22.6	26.2***	2.0
Number of early alerts indicating concern	0.65	0.43	0.22***	0.06
Number of early alerts indicating concern, referrals, or to-do items	1.60	0.43	1.17***	0.08
Number of early alerts indicating concern, referrals, or to-do items (%)				
0	51.2	77.4	-26.2***	2.0
1	5.8	13.0	-7.1***	1.3
2-3	28.0	7.1	20.9***	1.6
4 or more	15.0	2.6	12.4***	1.2
Sample size (total = 2,075)	802	1,273		

SOURCE: MDRC calculations using early alerts data from Montgomery County Community College.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Estimates are weighted to account for differences in random assignment ratios across advisers.
Kudos, alerts indicating positive feedback, are excluded from the table.
Alerts in spring and summer semesters are combined.
The second cohort is not included in the second semester analysis.

information than their typical emails to students. Advisers also responded when students replied. Advisers provided suggestions, like meeting with professors and attending tutoring, via email to the small proportion of students who completed the self-report survey. However, it is unclear whether students read the emails: Advisers reported that few students replied, and students reported that they did not remember receiving them. Several advisers reported making phone calls to students who were unresponsive to email — a time-consuming process.

- **The program increased the number of advising appointments; however, students tended to meet with advisers later than intended.**

A big obstacle to implementing the enhancements as designed was the timing with which program group students scheduled their required appointments. Advising staff members placed the registration hold on program group students' accounts early in the semester as intended, and a higher proportion of program group students than control group students had contact with an adviser. As Table 4.5 indicates, about 59 percent of program group students had contact with an adviser in the first semester, compared with 38 percent in the control group. In the second semester, about 32 percent of program group students had contact with an adviser, compared with about 21 percent of students in the control group. However, based on interviews with advisers and program staff members, most program group students scheduled their required appointment after the semester had ended. Classes at MCCC often do not fill up, and many students register for courses just before the start of the upcoming semester. So students may not have felt a sense of urgency during the semester to meet with advisers to lift the registration hold.

Because of the timing of most required appointments, advisers were unable to use early-alert data during in-person advising sessions. These data provided real-time information on the ways in which students might be struggling, which could have helped advisers intervene with students to make an adjustment while they were still in class.

After the first semester of the study, the college added a new staff person, called a student success specialist, to conduct phone and text campaigns with all students in the program group who had required advising appointments to encourage them to meet with their adviser during the semester. Many students who did not persist to the second semester had exhibited academic or financial challenges, and the college hoped that the student success specialist could help more students meet with advisers earlier in the semester to address such issues. Advisers could also refer students to the student success specialist.

- **Advisers did not describe substantial differences in the content of advising sessions.**

Advisers reported that the required advising appointments tended to emphasize career planning more than their usual appointments, but that otherwise, advising sessions with students in the program group were similar in content to sessions with students in the control group. Advisers also reported that the guiding questions in the toolbox did not differ substantially from what they typically asked students; therefore, they used the guiding questions, as prescribed by the toolbox, inconsistently in their sessions with program group students.

TABLE 4.5 Differences in Advising Appointments, Montgomery County Community College

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Had contact with an adviser (%)	58.9	38.4	20.5***	1.8
Number of advising contacts	1.03	0.62	0.40***	0.04
Number of advising contacts (%)				
0	41.1	61.6	-20.5***	1.8
1	34.6	24.3	10.2***	1.7
2-3	20.2	11.8	8.4***	1.3
4 or more	4.1	2.2	1.8***	0.6
Sample size (total = 2,989)	1,248	1,741		
Second semester				
Had contact with an adviser (%)	31.6	20.7	10.9***	1.9
Number of advising contacts	0.48	0.30	0.18***	0.04
Number of advising contacts (%)				
0	68.4	79.3	-10.9***	1.9
1	21.1	14.0	7.1***	1.7
2-3	9.2	6.4	2.8**	1.2
4 or more	1.3	0.3	1.0**	0.4
Sample size (total = 2,075)	802	1,273		

SOURCE: MDRC calculations using advising data from Montgomery County Community College.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Estimates are weighted to account for differences in random assignment ratios across advisers.
Advising contacts and notes in spring and summer semesters are combined.
The second cohort is not included in the second semester analysis.
Fall 2017 data includes tutoring sessions.

- **Although the college received additional resources to support the program, adviser capacity constraints remained an issue.**

The technology component proved difficult and time consuming for advisers. It was difficult both to learn to use the new software and to find time to use it. In particular, using mail merge to send personalized emails based on the new data proved particularly frustrating, because the process was not automated. Advisers also had trouble finding time to meet with all their students. After the first semester of implementation, some emails were automated and the overall number of messages was

reduced. The length of advising sessions was also reduced for students in their second semester in the study in an effort to reduce the time burden on advisers.

EARLY FINDINGS ON STUDENT OUTCOMES

Overall, the enhancements to iPASS appear to have had a slightly negative estimated effect on students' academic progress. Table 4.6 shows that, in the first semester, control group students attempted 7.54 credits and earned an average of 5.60 credits. Program group students attempted 7.29 credits and earned 5.31 credits — both differences are statistically significant reductions of 0.3 credits, after rounding.

A closer look at the data suggests that the mechanics of the registration hold may have negatively affected enrollment in later-term, short-duration courses. Most of MCCC's courses are 15 weeks long, but the college also offers some 7-week courses. For some of these 7-week courses, the add/drop deadline fell in the middle of the semester — after the registration hold was placed on program group students' accounts. If program group students attempted to register for one of these later-term courses midsemester, the hold would have prevented them from registering — with limited time before the add/drop deadline to take the necessary action to remove the hold.

After two semesters, students in the program group had earned an estimated 0.53 credits fewer than students in the control group. The estimated negative effect on credits attempted in the courses for which the add/drop deadline fell after the registration hold was placed (which includes summer courses) is 0.32 credits.

MCCC and other colleges commonly place registration holds on other students for many reasons, and the way the registration hold was placed for program group students aligns with the college's typical practice. These results show that in some cases registration holds may have unintended consequences. Based on this finding, staff members at MCCC removed the hold for all program group students near the end of the spring 2018 semester. The college is considering how holds might be affecting other students outside of the study.

Table 4.6 shows that a large proportion of MCCC students in the study did not return for a second semester; only about half of the first cohort of students registered for second-semester classes. Since they were continuing students, some may have graduated or transferred to four-year institutions.[11] Many probably did not. The retention rate for the study sample is slightly below the rate for community college students nationally — 62 percent of all first-time college students who started in fall 2016 were retained at the institution where they initially enrolled.[12]

The program did not have any significant effects on persistence rates, or the rates at which students received Ds or Fs or withdrew from courses.

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11 The final report will include graduation rates.

12 National Student Clearinghouse Research Center (2018).

TABLE 4.6 Differences in Credits Attempted and Earned, Montgomery County Community College

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Registered in any course (%)	97.0	97.5	-0.5	0.4
Developmental	10.3	9.4	0.9	1.1
College-level	95.1	95.9	-0.8	0.6
Course add/drop deadline was before registration hold was applied	96.1	96.9	-0.8	0.5
Course add/drop deadline was after registration hold was applied	28.3	29.5	-1.2	1.7
Total credits attempted	7.29	7.54	-0.26*	0.15
Developmental	0.37	0.36	0.01	0.04
College-level	6.92	7.18	-0.27*	0.15
From enrolled courses with an add/drop deadline before the registration hold was applied	5.95	6.04	-0.09	0.11
From enrolled courses with an add/drop deadline after the registration hold was applied	1.33	1.50	-0.17*	0.10
Total credits earned	5.31	5.60	-0.29*	0.16
Developmental	0.19	0.20	-0.01	0.03
College-level	5.12	5.40	-0.28*	0.16
From enrolled courses with an add/drop deadline before the registration hold was applied	4.24	4.40	-0.16	0.12
From enrolled courses with an add/drop deadline after the registration hold was applied	1.07	1.20	-0.13	0.09
Received a D or F in any course (%)	32.8	33.5	-0.7	1.7
Withdrew from any course (%)	17.0	15.7	1.3	1.4
Sample size (total = 2,989)	1,248	1,741		

(continued)

TABLE 4.6 (continued)

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
Second semester				
Registered in any course (%)	51.9	54.4	-2.6	2.2
Developmental	2.8	2.6	0.1	0.7
College-level	51.6	54.3	-2.7	2.2
Course add/drop deadline was before registration hold was applied	50.7	52.2	-1.5	2.2
Course add/drop deadline was after registration hold was applied	9.0	11.7	-2.7**	1.3
Total credits attempted	3.95	4.12	-0.18	0.19
Developmental	0.10	0.08	0.02	0.02
College-level	3.85	4.04	-0.19	0.19
From enrolled courses with an add/drop deadline before the registration hold was applied	3.60	3.67	-0.07	0.18
From enrolled courses with an add/drop deadline after the registration hold was applied	0.34	0.45	-0.11*	0.06
Total credits earned	2.98	3.16	-0.18	0.17
Developmental	0.04	0.06	-0.02	0.02
College-level	2.94	3.10	-0.17	0.17
From enrolled courses with an add/drop deadline before the registration hold was applied	2.72	2.84	-0.12	0.16
From enrolled courses with an add/drop deadline after the registration hold was applied	0.26	0.32	-0.06	0.05
Received a D or F in any course (%)	15.6	15.9	-0.3	1.6
Withdrew from any course (%)	9.5	11.3	-1.8	1.3
Sample size (total = 2,075)	802	1,273		

(continued)

TABLE 4.6 (continued)

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
Cumulative semesters				
Total credits attempted	11.70	12.25	-0.55*	0.31
Developmental	0.50	0.47	0.03	0.06
College-level	11.20	11.78	-0.59*	0.31
From enrolled courses with an add/drop deadline before the registration hold was applied	9.65	9.88	-0.23	0.24
From enrolled courses with an add/drop deadline after the registration hold was applied	2.05	2.38	-0.32**	0.15
Total credits earned	8.66	9.19	-0.53*	0.31
Developmental	0.27	0.29	-0.02	0.04
College-level	8.39	8.90	-0.51*	0.31
From enrolled courses with an add/drop deadline before the registration hold was applied	6.99	7.31	-0.32	0.25
From enrolled courses with an add/drop deadline after the registration hold was applied	1.67	1.88	-0.21	0.14
Received a D or F in any course (%)	41.6	42.1	-0.5	2.1
Withdrew from any course (%)	24.7	25.2	-0.5	1.9
Sample size (total = 2,075)	802	1,273		

SOURCE: MDRC calculations using transcript data from Montgomery County Community College.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Estimates are weighted to account for differences in random assignment ratios across advisers.
Spring and summer transcript records are combined.
The second cohort is not included in the analysis of the second and cumulative semesters.
At all three colleges in this study, registration holds were applied to program group students shortly after they enrolled in courses for the semester, to require students to meet with an adviser before making further changes to their course loads. At MCCC, this hold prevented some students from registering later for courses that did not follow the regular 15-week course schedule, including summer term courses.

CHAPTER
5

University of North Carolina at Charlotte

A large, urban research university, the University of North Carolina at Charlotte (UNCC) is home to approximately 23,400 undergraduate students,[1] most of whom attend full-time, as well as about 3,000 faculty and staff members. About 60 percent of the students are white, and, as Table 5.1 shows, many students who attend UNCC are from low socioeconomic backgrounds, with nearly 76 percent of full-time beginning undergraduate students receiving some form of financial aid. About one-quarter of students finish a bachelor's degree within four years. UNCC is made up of eight academic colleges, four of which participated in this project: the Colleges of Business, Computing and Informatics, and Liberal Arts and Sciences and the University College, which houses students who have not yet declared a major.

This chapter explains UNCC's standard advising process and how its work under the iPASS grant was enhanced for the study. It then describes the students in the study sample and reports on the implementation of enhanced iPASS: whether it was conducted with fidelity to its design and how the experience of students in the program group contrasted with that of students in the control group. The chapter concludes with early findings on academic outcomes.

iPASS AND STANDARD ADVISING AT UNCC

UNCC has a decentralized model of advising: Each of the eight colleges has its own advising center. While all students are required to meet with an adviser during their freshman year and when declaring a major, each of the colleges runs its advising center slightly differently. The Colleges of Computing and Informatics and Liberal Arts and Sciences use a "split" model of advising: Professional advisers meet with incoming students and those who have not declared a major, and faculty members advise students once they have entered a major. In the College of Business, professional advisers handle advisement until graduation.

1 The university has approximately 5,300 graduate students, for a total student population of about 28,700.

TABLE 5.1 Institutional Characteristics, University of North Carolina at Charlotte, Fall 2016

CHARACTERISTIC	VALUE
Overview	
Degree of urbanization	Large city
Level of institution	Four-year and graduate
Open admission policy	No
Fall enrollment	
Total students	28,721
Total undergraduates	23,404
Undergraduate status (%)	
Full-time	86.6
Part-time	13.4
Race/ethnicity of undergraduates (%)	
American Indian or Alaska Native	0.3
Asian	6.0
Black or African-American	16.4
Hispanic	9.2
Native Hawaiian or other Pacific Islander	0.1
White	58.8
Two or more races	4.2
Race/ethnicity unknown	2.6
Nonresident alien	2.4
Financial aid status of undergraduates (%)	
Awarded Pell Grant	37.3
Full-time first-time students awarded any financial aid	75.9
Outcomes	
Retention rates[a] (%)	
Full-time	82.0
Part-time	79.0
Completion rate of degree/certificate[b] (%)	
100% of normal time	25.0
150% of normal time	55.0
200% of normal time	58.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 2016-2017.

NOTES: [a]This represents first- to second-year retention rates of first-time students in fall 2016.
[b]Completion rates are calculated for a four-year bachelor's degree (4, 6, and 8 years).

Some colleges used registration holds to require certain students to see an adviser while others did not. University College and the College of Computing and Informatics required all students to meet with an adviser every semester and enforced this policy with a registration hold. The Colleges of Business and Liberal Arts and Sciences could not place registration holds on all students because they did not have the advising capacity to deal with all of them. Advisers at all colleges use a case management system that enables them to take notes, see any flags students receive, and conduct appointment campaigns.[2] As part of standard practice, college advising centers have both scheduled and walk-in hours; however, the colleges serve walk-in students in different ways. For instance, some colleges allow walk-in students to meet with advisers about lifting a registration hold, while others only offer walk-in appointments for basic services (such as withdrawing from a course) and require a scheduled appointment to lift a hold. Advisers at all colleges refer students to various support services as needed, such as tutoring, counseling, and the career center.

When UNCC began iPASS work in 2015, the goals were to integrate existing systems, update or replace systems that were antiquated, and identify and reach students who were considered at risk of not graduating. The institution implemented an early-alert system aimed at supporting such students. To use the system, faculty members would log in and flag students who seemed to be struggling. The system also enabled instructors to give students positive feedback, for example if they were performing well or had good attendance. Students and advisers received notification that a flag had been raised. However, there was no systematic or consistent policy or procedure for advisers to respond to those flags. Though the early-alert system was implemented across the institution as part of the original iPASS grant, faculty usage, communication with students, and adviser involvement varied by college. The university also purchased a degree audit tool shortly before the study enhancements were launched and was in the process of implementing it during the study.

ENHANCEMENT DESIGN

Starting in spring 2017, UNCC implemented a two-semester enhancement model that focused on identifying at-risk students and conducting outreach and advising sessions for those students. The goals were to extend the institution's existing iPASS work and provide more at-risk students with enhanced services. The overall strategy included registration holds to motivate at-risk students to meet with advisers; frequent and sustained communication with students; and the use of a "toolbox" to guide advising sessions. The enhancements were designed to provide more data to students and advisers, including early alerts about student progress in key courses. Table 5.2 presents a summary of the iPASS enhancement components and how they compare with the college's standard courses and services (unenhanced iPASS).

For UNCC, a unique component of the enhancement model was an alert to program group students if they were enrolled in a "critical progression course" — a course considered predictive of success in a major, such as Principles of Accounting for a business major or General Chemistry for a biology

2 Appointment campaigns are mass emails to students encouraging them to make an advising appointment. The email contains a link that takes students to a website where they can schedule it.

TABLE 5.2 Summary of Enhanced and Standard Advising Models, University of North Carolina at Charlotte

COMPONENT	ENHANCED ADVISING	STANDARD ADVISING
Informal communication	Message to welcome students and assign "advising homework" or intake form	No welcome message required, though some advisers may send one. No "advising homework" required.
	Standard messages sent via mail-merge application and based on enrollment in critical progression courses, early alerts, and midterm grades	No customized messages based on students' risk status
Targeted communication	At least five messages from adviser over the course of the semester asking students to establish goals and providing feedback based on academic performance and early alerts	Communication sent to students on a case-by-case basis but with no systematic outreach process
Advising sessions	Mandatory advising session for students who get two or more D or F grades on midterms or one D or F on a midterm in a critical progression course	Walk-in or scheduled appointments initiated by student
	30-minute session	Length of advising sessions varies by college
	Adviser toolbox to guide advising session, with three overarching guiding questions and instructions on how to integrate risk information	No adviser toolbox to guide advising session

SOURCE: Kalamkarian, Boynton, and Lopez (2018).

major.[3] Advisers sent messages about those courses to students in the program group in the second week of the semester. The institution asked faculty members who taught certain courses — critical progression courses and several others — to use the early-alert feature in the fourth week of the semester to send either warnings or positive feedback based on how students were performing.

A key goal of the enhancements was for students struggling academically to meet face to face with advisers to discuss their academic progress during the semester. When faculty submitted early alerts during Week 4, advisers reached out to students with two or more early alerts or a single early alert in a critical progression course, encouraging them to make an appointment for an advising session. During Week 8, when the faculty reported midterm grades, advisers placed registration holds on

3 Critical progression courses were identified using a predictive analytics software tool.

students who received two or more D or F grades or received a D or F in a critical progression course. Advisers conducted appointment campaigns to those students and required an in-person meeting, after which the adviser would remove the registration hold. These outreach procedures were unique to the study and to the program group students.

During the advising sessions, advisers used the toolbox, which consisted of guiding questions about what was going well and what was not going well for the student, and probing questions about things like career aspirations and academic and nonacademic challenges. The toolbox also contained student learning outcomes (such as learning how to think critically about their experiences). Advisers would use the software to take notes and record significant points for students to take away from the session. The overall goal was to enable advisers to better identify students' challenges (academic and nonacademic), discuss ways for them to overcome these challenges, and refer them to other resources as appropriate, such as tutoring or the campus writing center. Advisers would counsel students on topics like improving study skills, developing a time management plan, preparing for a test, and considering alternative education pathways.

To enhance communication, project team leaders from UNCC and the research teams from CCRC and MDRC worked together to develop email message templates and timelines. Students in the program group received messages every two weeks until midterms, as well as before and after the semester. Between midterms and the end of the semester, advisers would reach out to students who were not responsive to previous messages concerning their academic performance. Advisers normally send some standard messages to all their students, so students in the control group would receive some adviser communication. Students in the program group, however, received several unique targeted messages, such as those that alerted them to the critical progression courses in which they were enrolled, messages concerning early-alert flags and midterm grades, and some additional standardized content (for example, information and links to support services and the online advising appointment system). iPASS leaders at the university regularly distributed outreach templates, instructions, and descriptions of the messages before each appointment campaign or message to advisers. Based on feedback from advisers after the first semester, the project leaders updated the language of the email templates for the second semester to be more personalized and instituted more options to customize messages.

Shortly after the end of the semester, advisers sent a message called a "Success Report" to students in the program group, which included a summary of students' grades with indicators of which courses were critical progression courses. The report also listed courses in which the student was enrolled for the following semester and indicated which ones were critical progression courses.

TARGET POPULATION

UNCC's iPASS enhancements targeted two cohorts of students. The first cohort of students, who were randomly assigned in the study in spring 2017 and for whom there are two semesters of data, consisted of continuing students with fewer than 60 credits. The goal was to identify students who had a GPA above 2.0 but less than a 70 percent chance of graduating based on the predictive analytics tool. UNCC, however, experienced an error with its predictive analytics system. Many students

received incorrect risk scores and may have been included in the study erroneously. Advisers indicated that the error made them reluctant to rely on the risk scores to inform their intervention with students. Instead they used course-specific grades, GPA, and information gleaned from interactions with students.

For the second cohort of students, who were randomly assigned in fall 2017 and for whom there is one semester of data, UNCC focused on transfer students. About 45 percent of the incoming students at UNCC each fall are transfer students, a group with certain risk factors: They tend to drop out at higher rates and have lower GPAs than continuing students, and they are more likely to be balancing school with work responsibilities.[4]

Table 5.3 presents demographic characteristics for students at UNCC who were enrolled in the study. The demographic characteristics of the study sample closely resemble those of the university population (Table 5.1), with a couple of small differences: The study sample was about 43 percent female, compared with 47 percent of the total student population, and less than 5 percent of the study sample were 25 years old or older, compared with about 15 percent of all undergraduate students at UNCC.[5]

IMPLEMENTATION FIDELITY AND SERVICE CONTRAST

- **Students in the program group received considerably more communications from advisers than students in the control group.**

Advisers sent messages to program group students every two weeks for the first half of the semester, in addition to the infrequent messages they sent to all students. Advisers also sent more detailed, personalized information to students in the program group, such as information about critical progression courses, or a list of resources that could help students with particular needs.

- **Similar proportions of students in the program and control groups were flagged for early alerts.**

As Table 5.4 shows, just under one-third of study participants in both groups received any early alert during their first program semester.[6] Only about 15 percent of students in the first cohort in either group received at least one early alert during their second semester in the study.

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4 Duggan and Pickering (2008).

5 University statistics from 2017 are from the National Center for Education Statistics database of the Institute of Education Sciences (https://nces.ed.gov/).

6 Alerts indicating positive performance were excluded from this analysis, since they were available only for the first cohort of students. UNCC used a different alert data system in fall 2017, which did not include positive performance alerts.

TABLE 5.3 Demographics of the Sample, University of North Carolina at Charlotte

CHARACTERISTIC	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
Female (%)	43.7	43.1	0.7	1.6
Race/ethnicity (%)				
Hispanic	9.1	10.0	-0.8	1.0
White	59.9	60.3	-0.4	1.6
Black	14.5	14.4	0.2	1.1
Other	16.5	15.4	1.1	1.2
Obtained a high school diploma or GED[a] (%)	99.5	99.5	-0.1	0.2
College credits earned at study enrollment (cohort 1 only)[b]	29.62	29.80	-0.19	0.57
Grade point average at study enrollment (cohort 1 only)[b]	3.07	3.04	0.02	0.02
Age (%)				
18 or under	29.5	28.4	1.2	1.5
19-24	66.2	66.8	-0.5	1.5
25 or over	4.2	4.8	-0.6	0.7
Sample size (total = 3,803)	1,902	1,901		

SOURCE: MDRC calculations using demographic data from the University of North Carolina at Charlotte.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Sample sizes vary because of missing values.
[a]A General Educational Development (GED) certificate is a high school equivalency credential.
[b]Since the second iPASS cohort at UNCC included primarily transfer students who had no credits or GPA history with the school, only the first cohort is included in the measure. There are 2,567 students in cohort 1, with 1,284 in the program group and 1,283 in the control group.

- **Slightly more students in the program group had contact with advisers.**

Table 5.5 indicates that about 73 percent of the program group had contact with an adviser during the first semester of the intervention, compared with about 69 percent of the control group, an estimated difference of 4 percentage points that is statistically significant. Except for the Colleges of Business and Liberal Arts and Sciences, the UNCC colleges that participated in the study use mandatory registration holds that require all students to meet with advisers, so the registration hold itself provided limited contrast. In students' second semester in the study (data limited to the first cohort), there was no statistically significant difference in the percentage of students who had contact with an adviser; about half the students in both groups did so.

TABLE 5.4 Differences in Early Alerts, University of North Carolina at Charlotte

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Had any early alerts (%)	30.3	31.5	-1.2	1.5
Number of early alerts[a]	0.45	0.48	-0.03	0.03
Number of early alerts[a] (%)				
0	69.7	68.5	1.2	1.5
1	20.2	20.2	0.0	1.3
2-3	9.2	10.3	-1.0	1.0
4 or more	0.9	1.0	-0.1	0.3
Sample size (total = 3,803)	1,902	1,901		
Second semester				
Had any early alerts (%)	15.7	14.1	1.6	1.4
Number of early alerts[a]	0.19	0.17	0.02	0.02
Number of early alerts[a] (%)				
0	84.3	85.9	-1.6	1.4
1	12.8	11.8	1.0	1.3
2-3	2.9	2.2	0.7	0.6
4 or more	0.0	0.2	-0.1	0.1
Sample size (total = 2,567)	1,284	1,283		

SOURCE: MDRC calculations using early alerts data from the University of North Carolina at Charlotte.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Kudos, alerts indicating positive feedback, are excluded from the table.
Alerts in spring and summer semesters are combined.
The second cohort is not included in the second semester analysis.
[a]Due to limitations in the data reported, students have no more than one early alert per course counted each day.

TABLE 5.5 Differences in Advising Appointments, University of North Carolina at Charlotte

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Had contact with an adviser (%)	72.9	68.9	4.1***	1.4
Number of advising contacts	1.12	1.06	0.06*	0.03
Number of advising contacts (%)				
0	27.1	31.1	-4.1***	1.4
1	46.8	44.6	2.3	1.6
2-3	23.0	21.2	1.9	1.3
4 or more	3.1	3.2	-0.1	0.6
Sample size (total = 3,803)	1,902	1,901		
Second semester				
Had contact with an adviser (%)	51.6	49.7	1.9	2.0
Number of advising contacts	0.73	0.67	0.05	0.03
Number of advising contacts (%)				
0	48.4	50.3	-1.9	2.0
1	35.6	36.4	-0.9	1.9
2-3	15.2	12.5	2.7**	1.4
4 or more	0.9	0.8	0.1	0.4
Sample size (total = 2,567)	1,284	1,283		

SOURCE: MDRC calculations using advising data from the University of North Carolina at Charlotte.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Advising contacts and notes in spring and summer semesters are combined.
The second cohort is not included in the second semester analysis.

- **Most advisers used some portion of the toolbox and, in doing so, reported slightly more in-depth conversations with program group students, but also with other students they advised.**

Though very few advisers reported using the toolbox document on a regular basis, several advisers indicated that they had memorized the three main guiding questions and used them with students quite frequently. According to advisers, the questions facilitated a slightly more in-depth conversation with students, opening the conversation to things like nonacademic issues that may be affecting a student's academic performance. Most advisers who used the guiding questions reported using them with all their students, because they believed they were helpful in driving conversations, because the questions generally aligned with their approach to advising, or because they did not feel comfortable using an approach they believed was useful with some students and not others.

- **For advisers who reported not using the toolbox, the reasons varied.**

Some advisers reported that they were already practicing high-quality advising with all students and did not find that the toolbox offered additional value. Others considered the outreach strategy, not the advising sessions themselves, to be the service contrast between the program and control groups, so the toolbox did not strike them as useful. One adviser who was hired after the study began reported not having been trained to use the toolbox. A few others noted that they may have missed the opportunity to use the toolbox with some of the students in the program group because of technical difficulties using the system. All these reasons further limited the service contrast.[7]

EARLY FINDINGS ON STUDENT OUTCOMES

At UNCC, the iPASS enhancements did not produce statistically significant effects on students' short-term educational outcomes, as shown in Table 5.6. During students' first program semester, almost all study participants enrolled in classes. Students in both the program and control groups earned about 13 credits in their first semester in the program, on average. About 32 percent of both program and control group students received a D or an F in their first program semester, and about one-quarter withdrew from at least one class.

During the second program semester, nearly 90 percent of students in the first cohort enrolled in classes. Program and control group students both earned an average of about 11.5 credits in their second semester in the study, and about 26 percent of program and control group students received a D or F in a class in their second semester in the study. Small differences on these measures are not statistically significant.

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7 The limited use of the toolbox may also have been a byproduct of a technology change that took place during summer 2017. While advisers generally reported liking the new case management and early-alert system, they described a learning curve, and many advisers reported that they were still getting familiar with the system in late fall, making it a challenge to learn to use the toolbox as well. Moreover, the new system was not able to house the toolbox document, so it could be difficult for advisers to remember to use it during advising sessions.

TABLE 5.6 Differences in Credits Attempted and Earned, University of North Carolina at Charlotte

STUDENT OUTCOME	PROGRAM GROUP	CONTROL GROUP	DIFFERENCE	STANDARD ERROR
First semester				
Registered in any course (%)	98.2	98.3	-0.1	0.3
Total credits attempted	15.09	14.99	0.10	0.11
Total credits earned	13.37	13.26	0.11	0.14
Received a D or F in any course (%)	32.4	32.3	0.1	1.5
Withdrew from any course (%)	23.7	24.2	-0.5	1.4
Sample size (total = 3,803)	1,902	1,901		
Second semester				
Registered in any course (%)	89.0	88.0	1.0	1.3
Total credits attempted	12.91	12.71	0.20	0.19
Total credits earned	11.47	11.48	-0.01	0.20
Received a D or F in any course (%)	26.6	26.2	0.4	1.7
Withdrew from any course (%)	19.6	17.2	2.4	1.5
Sample size (total = 2,567)	1,284	1,283		
Cumulative semesters				
Total credits attempted	28.99	28.64	0.35	0.27
Total credits earned	25.77	25.54	0.23	0.32
Received a D or F in any course (%)	43.0	44.2	-1.2	1.9
Withdrew from any course (%)	35.8	35.8	-0.1	1.9
Sample size (total = 2,567)	1,284	1,283		

SOURCE: MDRC calculations using transcript data from the University of North Carolina at Charlotte.

NOTES: Rounding may cause slight discrepancies in sums and differences.
Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Estimates are adjusted by pre-random assignment characteristics of sample members.
Spring and summer transcript records are combined.
The second cohort is not included in the analysis of the second and cumulative semesters.

Because the iPASS enhancements did not produce substantial contrasts in the early alerts or advising support that students received, it is not surprising that the study enhancements did not lead to noticeable differences in short-term educational outcomes.

CHAPTER
6

Conclusion

iPASS is an ambitious initiative to integrate technology, data, and advising. Institutions must make choices about which kinds of technology to use, implement the new technologies, collect new data, help faculty members and advisers learn to use new systems, and synthesize everything into redesigned advising practices. The ultimate goal is to improve student outcomes through improved advising. So far, the enhancements undertaken by institutions in this study have not produced clear evidence of improvements in student outcomes. As described in the preceding chapters, this is largely because the enhancements generally produced only a modestly different student experience for students in the program group, compared with students in the control group. Rather than substantially altering how students experience college, the enhancements resulted in more incremental change.

Even though the enhancements have not yet produced clear improvements in students' academic performance, some staff members said they believe that their work in the iPASS initiative and their work on the enhancements studied here are important steps toward a stronger system to support students and help them succeed. It is clear that more work is needed: Across the three institutions, large proportions of students who were identified as being at high risk still earn Ds or Fs, or do not persist into subsequent semesters of college.

The institutions in this project — California State University, Fresno; Montgomery County Community College; and the University of North Carolina at Charlotte — approached the study as a learning endeavor and an opportunity to make research-informed design decisions as they expand and enhance iPASS practices. Each of the institutions made progress integrating technology and data with advising, getting more students in to see advisers, and expanding the content of advising sessions, but each also faced difficulties. In many ways their experiences highlight both the opportunities and the challenges that this kind of effort presents:

- **There is a tension between moving quickly to scale up advising reforms to all students and substantially changing students' experiences.**

The reforms studied in this project were intended to integrate data and technology more fully into advising practices. Still, a large proportion of students never met with an adviser during the study period to experience how the reforms and enhancements could change advising sessions. The institutions also faced capacity challenges in implementing the reforms and enhancements for the subset of students in the study — for example, advisers did not always have time to learn how to use new

software, to use it with their students, or to meet with all of their students, key first steps in taking the enhanced reforms to a larger scale. The programs that are most effective at helping students stay on track to graduate substantially change the student experience, including multiple advising sessions per semester. The institutions in this study have experimented with ways to make advising tools and data accessible to students, advisers, and faculty. The next step is to build on this work to drive larger changes in the student experience.

- **Advisers would like richer advising sessions that go beyond course registration, but they generally felt that they needed more time to meet with students.**

Even with new technologies and greater integration, advisers still say they do not have the capacity to effectively serve all their students. In fact, fully using the new data and technologies that were part of this project meant that advising sessions would need to be longer. At Fresno State and MCCC, the institutions used some of their grant resources to add staff members, which appeared to be an important factor in substantially increasing the number of students who had contact with an adviser. Using peer mentors, as Fresno State did, was less expensive than adding advisers, and once the practice was refined, it served to offload some of advisers' work in a potentially cost-efficient way. Advisers reported that the toolbox that was used in the study helped them discuss topics with students in a more structured way and helped elicit more informative responses from students.

- **Registration holds can get more students to meet with advisers, but the details are important, as there may be unintended consequences.**

In this study, registration holds were designed to encourage students to meet with advisers during the semester, so that advisers could help with any issues students were facing and also help them plan for the subsequent semester. At Fresno State, these holds, coupled with a strong outreach strategy, substantially increased the number of students who had contact with advisers. At MCCC, however, students were not sufficiently motivated by the registration holds to meet with their advisers during the semester, and students may have taken fewer short-term courses later in the semester because of the holds. Approaches that work in one setting will not always work in another if the incentives and mandates are not aligned.

- **Collecting and responding to data about college students during the semester remains a challenge.**

Different ways of collecting data from students and faculty members could make integrated advising approaches more powerful, but collecting new information from students was especially difficult. Part of the design at some of the institutions included sending short surveys to students asking them about their classes and their academic progress. Survey responses were intended to inform the content of advising sessions with individual students, but few responded. Faculty members were better at responding and providing early-alert information about students who were exhibiting risk factors, although there was still inconsistency, and many faculty members did not respond. These types of early alerts could be automated for instructors who keep electronic grading systems up to date, which would facilitate real-time data collection and data-informed decision-making during advising sessions.

- **Advanced data analytics presents opportunities but also risks, and simpler, more transparent solutions still work better in some cases.**

The two colleges that used proprietary predictive analytics technologies in this study experienced problems. At UNCC, staff members worked diligently to integrate data into advising sessions and to understand student risk factors, but proprietary software introduced errors into the risk assessments. At MCCC, a portion of students were identified as at risk who were actually performing well. At these colleges, advisers had less insight into the factors that identified at-risk students and less confidence in the assessments. Fresno State had the simplest approach, relying largely on students' grade point averages rather than proprietary algorithms, and did not have a problem with risk assessment. In the second semester of the study, MCCC switched to using academic performance as the primary risk factor, based on feedback from advisers. UNCC also moved away from predictive analytics. The university used a graduation probability algorithm to identify the study sample for the first cohort of students but not the second.

- **Collaboration within the institutions allowed them to build on existing strengths.**

Staff members within each of the institutions collaborated to develop new practices to use existing technology and data, and to formalize those practices into a common set of guidelines that could be shared and used more broadly across the institutions. Each of the institutions demonstrated a commitment to strengthening student advising and support services. In developing the enhancements as part of this study, each institution established a foundation of resources, including standardized communication plans, messaging templates, a toolbox to guide advising sessions, and additional ways to help faculty members use early alerts. Together these resources can advance the use of technology and data in advising.

WHAT'S NEXT

The institutions in this study and across the iPASS initiative are making progress, and institutional practices are changing. As this report shows, however, it is still early, and there is still much to learn about how to use these new technologies and advising practices to produce improvements in student outcomes.

This report has provided a closer look at how three institutions engaged in a rigorous process to enhance and study their iPASS implementations. Although there is not yet evidence that these enhancements have improved student outcomes, the institutions' work is ongoing. A subsequent report next year will present qualitative findings about the implementation of iPASS enhancements in greater detail, in addition to providing practical guidance for those interested in using new technologies to redesign their own advising practices. A final report will document the effects on longer-term student outcomes, using more data from all of the student cohorts included in this report.

APPENDIX

A

Details of the Implementation Research

The implementation research was guided by the following research questions:

1. In what ways did implementation of the intervention components adhere to the intervention design? In what ways did the implementation not adhere to the intervention design? Why?
2. How do the advising experiences of students in the intervention group compare with the experiences of students in the control group?

To answer these questions, the research team conducted three-day site visits to each of the institutions during both the spring 2017 and fall 2017 semesters. During these site visits, researchers conducted individual interviews with a wide range of stakeholders, including students assigned to the program group, students assigned to the control group, peer mentors, advisers, iPASS project leaders, and other advising and senior administrators. Appendix Table A.1 provides additional details on the number of interviews conducted with stakeholders at each institution each semester.

Interview protocols were designed to document implementation fidelity and degree of treatment contrast for each of the components of the interventions, including the application of registration holds, early-alert surveys, email and phone communications, and advising sessions. In addition, interview protocols were designed to document important contextual factors, including existing advising structures and technologies, capacity considerations related to advising, and other ongoing or recently implemented reforms that may have related to the institutions' iPASS experiences.

Typically, two researchers participated in an interview, with one researcher serving primarily as a note taker. If interviewees consented, interviews were audio recorded and transcribed. Researchers also took extensive field notes and prepared a detailed internal report summarizing initial impressions from each visit.

In addition, the research team conducted phone interviews with advisers and iPASS project leaders at each institution in spring 2018. Protocols for these interviews were designed to document the institutions' implementation experiences during the final semester of the intervention. In addition, these protocols asked about interviewees' interest in retaining and scaling one or more components of the intervention and whether the institution had any plans to do so.

The research team used Dedoose to code and analyze the data. Initially, the research team took an a priori coding approach, developing a codebook that aligned with the core components of the intervention and the iPASS grant.[1] A follow-up implementation report will draw on these data more extensively.

1 Saldaña (2015).

APPENDIX TABLE A.1 Tally of Interviews with Stakeholders

STAKEHOLDER	CALIFORNIA STATE, FRESNO	MONTGOMERY COUNTY COMMUNITY COLLEGE	UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE	TOTAL
Spring 2017				
Administrator	11	4	6	21
iPASS project leader	2	3	3	8
Adviser	12	13	16	41
Peer mentor	1	-	-	1
Program group student	7	11	11	29
Control group student	1	11	9	21
Fall 2017				
Administrator	6	4	4	14
iPASS project leader	2	3	4	9
Adviser	13	14	16	43
Peer mentor	2	-	-	2
Program group student	10	9	13	32
Control group student	3	7	7	17
Total	70	79	89	238

SOURCE: Community College Research Center field research data.

APPENDIX

B

Data Sources and Impact Estimation Model Specifications

DATA SOURCES

The technical analyses in this report rely on multiple data sources, described below.

- MDRC used selected institutional-level measures from the **Integrated Postsecondary Education Data System (IPEDS)**, housed at the U.S. Department of Education's National Center for Education Statistics. The IPEDS data from the 2016-2017 academic year provide context for the iPASS study.
- **Student demographic data.** The colleges provided MDRC with information on each student's background and academic history.
- **iPASS program data.** The colleges provided MDRC with information on sample members' iPASS program activity, including early alerts and advising appointments, from their respective iPASS data systems.
- **Student transcript data.** The colleges provided MDRC with information on the courses students took at their colleges, the grades they received, and credit hours for each course.

THE EFFECT OF THE ENHANCED iPASS INTERVENTION

The main analyses presented in Chapters 3, 4, and 5 are intent-to-treat estimates: The estimand, or the parameter being estimated, is the average treatment effect of being assigned to the enhanced iPASS group, regardless of whether students received the enhanced features of iPASS. This is not necessarily the same as the effect of experiencing enhanced iPASS, because, for example, not all students had contact with their advisers each semester.

To conduct these analyses, a generalized least squares estimator is used to estimate the effect of the enhanced iPASS program at each of the three colleges. The following model specification is used:

$$y = \beta_1 T + \sum \lambda_j Block_j + \sum \gamma_k X_k + \varepsilon$$

Here, y represents a target outcome, such as enrollment or credit accumulation. T is a binary indicator, equal to 1 if a student is randomly assigned to the program group and 0 otherwise. $Block_j$ is a vector of random assignment block indicators, equal to 1 if a student is in block j and 0 otherwise. Blocks are based on the unique college × adviser × cohort combination in which a student was randomly assigned. X_k is a vector of baseline characteristics (listed below) that are included in the model to improve the precision of the estimates of β_1.[1] β_1 is an estimator of the average effect of the intent to treat for the evaluation sample; weights are used so that this estimator is unbiased (described below). Missing indicators are included for those who are missing data on the baseline covariate. Baseline covariates include gender, race or ethnicity, and age for Fresno State and University of North Carolina at Charlotte impact estimates. Because Montgomery County Community College (MCCC) does not require a high school diploma or equivalency credential for enrollment, MCCC

1 Bloom, Richburg-Hayes, and Black (2007).

impact estimates include an additional covariate that indicates whether a student had a high school diploma or General Educational Development (GED) certificate before enrolling.

WEIGHTS FOR THE MCCC ANALYSES

Weights are used in the main analyses for MCCC (Chapter 4) to account for the changing random assignment ratio by adviser. At the other institutions in this study, the random assignment ratio was set to 50:50 and random assignment was stratified by adviser. Because advisers had large student caseloads at MCCC, and program group students required more advising time and effort than control group students, the number of program group students for advisers at MCCC was capped at 45 per adviser during cohort 1 study enrollment. This meant that any adviser who was assigned more than 90 students would end up with 45 program group students and more than 45 control group students. No caps were applied during cohort 2 enrollment, since it is a smaller cohort and many cohort 1 students did not re-enroll in the next semester. As a result, weights are calculated for each adviser block to account for resulting differences in the random assignment ratio. Weights are calculated to make the effective (weighted) random assignment ratio the same in all random assignment blocks and equal to 50:50, as follows:

$$w_{ij} = P_{ij}\left(\frac{0.5}{P_{\cdot j}}\right) + (1 - P_{ij})\left(\frac{1 - 0.5}{1 - P_{\cdot j}}\right)$$

where

P_{ij} is equal to 1 if individual i in random assignment block j is assigned to the program group and 0 if the individual is assigned to the control group; and

$P_{\cdot j}$ is equal to the proportion of sample members in random assignment block j assigned to the program group (that is, the average value of P_{ij} in random assignment block j).

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ABOUT MDRC

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Over the years, MDRC has brought its unique approach to an ever-growing range of policy areas and target populations. Once known primarily for evaluations of state welfare-to-work programs, today MDRC is also studying public school reforms, employment programs for ex-prisoners, and programs to help low-income students succeed in college. MDRC's projects are organized into five areas:

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- Improving Public Education
- Raising Academic Achievement and Persistence in College
- Supporting Low-Wage Workers and Communities
- Overcoming Barriers to Employment

Working in almost every state, all of the nation's largest cities, and Canada and the United Kingdom, MDRC conducts its projects in partnership with national, state, and local governments, public school systems, community organizations, and numerous private philanthropies.