

Five Years Later: Technology and Advising Redesign at Early Adopter Colleges

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In 2015, 26 broad-access two- and four-year colleges from various regions

across the nation began steps to adopt or enhance technology-mediated advising practices in an effort to improve the way they support students. These institutions were part of the Bill & Melinda Gates Foundation's Integrated Planning and Advising for Student Success (iPASS) initiative, aimed at promoting technology-supported advising redesign with implementation guidance from Achieving the Dream and EDUCAUSE. The colleges received modest grants to facilitate their work for a three-year period. The goal of the iPASS initiative was to improve students' advising experiences and, in doing so, improve student retention and completion. One of the difficulties in understanding the effects of the initiative is that advising redesign is an iterative process that takes a long time to implement (Karp et al., 2016), and it is often undertaken in combination with other reforms to promote student success. Yet it is clear that these early adopter colleges—all of which are still engaged in advising redesign—have used a range of strategies to guide their efforts and that these efforts have been substantial and have led to improvements in the ways that their students experience advising.

Understanding the iPASS colleges' long engagement in advising reform provides insights about sustainable and scalable redesign strategies that may work well at other institutions. This brief discusses the colleges' experiences, achievements, and challenges. Our findings align with and build on CCRC's previous iPASS and advising redesign research, which recognizes several elements connected with successful redesign efforts: the importance of strong support from senior leadership (Klempin & Karp, 2018); a focus beyond technology adoption that considers structural changes at the college that are central to the student experience and advising practice (Fletcher & Karp, 2015); and a clear shift in outreach and communication with students—both in-person and electronically—that is more targeted and personalized (Kalamkarian et al., 2020). This brief also discusses how the early adopter colleges have worked with technology vendors, the ways in which they have leveraged internal resources to move the redesign work forward, and how they have maintained momentum in reform over a substantial period of time.

The lessons learned by these early adopters of technology-mediated advising practice—five years after they began their work—may help other institutions that want to redesign the way



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they advise and support students. Moreover, the COVID-19 pandemic and the resulting campus closures across the country have further amplified the need for high-quality advising and student support services that are delivered virtually. Colleges that have quickly pivoted to remote technology-mediated advising and student support practices in response to the pandemic may—given the possible gains in efficiency and accessibility—continue to do so even after campuses return to in-person learning. The experiences of institutions that had been implementing technology-mediated advising practices prior to the start of the pandemic may be instructive for other institutions now required to navigate this virtual space.

Technology-Mediated Advising: What Is It and Why Do It?

Now more than ever, technology is a vital, everyday part of how colleges serve students. In addition to baseline tools—like email, instant messaging, and now video conferencing—institutions increasingly use technologies that support critical advising functions, such as helping students figure out what courses they need to take and making sure that students stay on track to reach their goals. Advising technologies have also evolved over the past several years. When iPASS started, tools generally fell into four categories: early alerts, predictive analytics, education planning, and case management (see textbox). More recently, colleges are also exploring tools like chatbots and mobile applications to reach students and respond to their needs.

While the number of tools is expanding, the underlying premise is the same: Advising technologies introduce efficiencies and empower advisors with information that can improve advising functions and outreach. For example, early alert tools offer a set of indicators called flags, such as “missing assignments” or “absent.” Faculty select flags that apply to students enrolled in their courses, which automatically generates a message to the student and the advisor, efficiently notifying both parties of an instructor’s concern. Advisors can intervene with students who may be struggling academically based on this information. They may then document action taken in case management tools that can be seen by others who interact with the student to provide ongoing, unduplicated support.

Much of the advising redesign undertaken as part of the iPASS initiative was aligned with the SSIPP framework, a set of organizing principles for high-quality advising (Klempin et al., 2019; Karp et al., 2016). Under this framework, advising is *sustained* throughout the students’ tenure in college; *strategically* administered to maximize reach; *integrated* across the institution; *proactive*, ensuring that support is not limited to students who opt-in for help; and *personalized* so that students get help when they need it from someone who knows them well.

Four Types of Advising Technologies

- **Early alert systems** notify the student, advisor, and other support providers when a student is struggling academically.
- **Predictive analytic tools** assess the probability of a student successfully completing a course or program.
- **Education planning tools** map out what courses a student should take each semester and track progress on that pathway.
- **Case management tools** streamline communication among advisors and between advisors and students, centralize note-taking on interactions with students, and monitor caseloads.

Study Method

To understand how early adopter colleges continued to progress in advising redesign implementation after the iPASS grant period ended in 2018, CCRC researchers tried to recruit interviewees from all 26 institutions, prioritizing individuals who led iPASS redesign activities. In the event that iPASS project leads had left the institution or transitioned to a different position, we reached out to persons currently overseeing advising redesign efforts. Our interviewees included academic affairs vice presidents, deans, provosts, and advising directors from 23 of the 26 original colleges.

We conducted one 75-minute semi-structured interview per institution between June and August 2020. All interviews were audio-recorded with participants' permission. Interview protocols were designed to outline each college's advising redesign goals and principles, changes made in advising and student support practices, enabling structures and processes, and change management strategies over time and particularly since the grant ended. Moreover, given the current pandemic, we asked about institutions' shift to a virtual environment, including training offered to faculty and staff on remote instruction and advising, and strategies for maintaining meaningful student relations in a virtual context.

Findings

What has been most important in how the iPASS colleges have engaged in reform over the long term? Three themes emerged from our interviews. First, the colleges focused squarely on improving the student experience, which meant not only adopting advising *technologies* but examining all aspects of advising from the perspective of better serving students. Second, the colleges reviewed staff and faculty roles in student support functions and identified ways—often using new technologies—to improve the capacity of staff to better serve students. Finally, the colleges employed strategies to facilitate change over time, enhance stakeholder buy-in, and foster a sustained focus on advising reform. Within each of these areas, the colleges overcame challenges and achieved significant progress. The interviewees also described ongoing work and future goals for improving student support and student success at their colleges.

1. Improving the Student Experience

- Colleges reviewed their traditional advising model, mapping how students interact with advising and other student services, to identify areas for improved engagement.
- Colleges put a heavy emphasis on timely and personalized communication with students.
- Colleges used some student data in their reformed support efforts, yet how to effectively and ethically use data and alert systems is not yet fully resolved.

Progress Made

Through our interviews, we found that several institutions had adjusted or completely changed the structure of advising on their campuses as part of their advising redesign work. Leading up to their changes, colleges reflected on how well students engaged with support staff (as well as instructors)

in activities such as educational planning; they then made adjustments so that students could be served in a more personalized and timely way.

In some cases, colleges moved to a split model of advising,¹ enlarging the role of faculty in advising and providing students with more varied individuals for support. Other colleges reasoned that an ongoing, consistent relationship with a knowledgeable advisor is more beneficial to student success, and opted to move away from a split model. A few colleges focused on having a convenient campus location for advising. These colleges often developed “hubs” where advising and student supports were in close physical proximity, such as in the same building or area of campus. Patrick Henry Community College organized advising and career counseling into a centralized location called the Student Success Center, enabling students to access support using a one-stop model. Others housed full-time advisors within the building that align with their disciplinary expertise, enabling students to receive support from individuals who are experts in their area of study. Zane State Community College, for instance, organized advising by major disciplinary area or “meta-major,” enabling students to receive personalized degree planning assistance from advisors who are specialists in those areas.

In addition to thinking about how advising would be structured and where it would be located, the colleges gave strong consideration to how faculty and staff communicate with students and how to make those experiences more personalized, both virtually and in-person. In terms of in-person engagement with students, several interviewees said that their colleges have focused heavily on the early experiences of incoming and first-year students. In alignment with previous research (see Kalamkarian et al., 2020), some colleges began using intake forms with short questionnaires so that advisors can address any academic or nonacademic issues that students self-report. These forms assist advisors in being more proactive and personalized in their engagement with students, and more strategic in how they make referrals to other campus supports. For example, Northeast Wisconsin Technical College developed an intake form administered through their early alert system that contains 18 questions, the answers to which may lead directly to referrals to supports such as housing, financial aid, and academic support.

Because many iPASS colleges adopted sophisticated communication tools, advisors could move away from the use of mass emails and could differentiate messages based on students’ goals, needs, and tenure in college. For instance, advisors could use a college data system to create a list of students who are close to earning a certain number of credit hours to encourage them to schedule an appointment to discuss whether they are on track to graduate on time. During the COVID-19 pandemic, faculty and advisor outreach has proven critical in ensuring that students are safe and in providing them with information about available resources. Because the colleges invested heavily in communication technology, many interviewees thought that they were able to pivot to a virtual communication strategy more seamlessly than non-iPASS peer institutions.

Across nearly all of the colleges, advisors were using case management technology that enables them to maintain information about students, take notes, and personalize their interactions and messages. Several interviewees said they were in the process of examining more personalized communication strategies such as chatbot technology (which uses artificial intelligence to respond to students’ individual questions), texting, and real-time technology to communicate with students more quickly and efficiently.

Ongoing Work

While early alert systems are often popular in discussions of advising redesign, we found wide variation in how institutions were using these tools. As part of their iPASS grants, most of the colleges had acquired early alert technology, and some were using it on a fairly large scale (e.g., with 70% of faculty using the system). Indeed, because Northeastern Wisconsin Technical College, for example, had scaled its early alert system, it was able to leverage it during the pandemic to flag students who had not logged in to their learning management system in four days. However, more generally, several interviewees indicated that their colleges were still grappling with how to effectively use early alerts, primarily from a policy and procedures standpoint. Even after several years of implementation, stakeholders at many campuses said they were still fine-tuning their early alert process, working through issues like how early is early enough to intervene with a student, who should intervene, and what that intervention should consist of.

Likewise, while we learned of widespread adoption of case management systems by advisors, the colleges continue to grapple with how to use data to inform student support activities and advising work. Questions include: What student-level data (e.g., academic, application, engagement with support providers, etc.) should colleges examine, and at what point in the students' tenure in college should they be used to inform advising practice? Who should have access to these data? What data can inform program-level decisions? What institution-level metrics are useful to determine if advising redesign is effective? How can data guide resource allocation?²

Northern Essex Community College: Using Student Data to Spur Faculty Engagement

In the years prior to receiving an iPASS grant, Northern Essex Community College (NECC) in Massachusetts used an advising model in which the majority of students received academic advising from primary role advisors, with very few receiving advising from faculty. During the grant period, NECC leaders realized that advisors had been spending the majority of their time helping students get acquainted with college life, navigate resources and services, explore long-term education goals, and select a major. They found, however, that advisors could not spend enough time with students to conduct in-depth career exploration and counseling. The college thus worked to restructure advising so that faculty would serve a more formal and intensive role in providing student support, particularly in terms of career advising.

It took several years for NECC to convince faculty of the importance of their role in counseling students about career options. One of the “game changers” for the college was the purchase of a data tool that enabled leaders, along with faculty and staff, to view more detailed data. Once faculty were able to access their student outcomes data by race/ethnicity and gender, they realized the urgency of addressing poor student outcomes and began to play an increased role in student support.

Further, by August 2020, the college had established five academic centers, where advising and student support is organized by disciplinary area or “meta-major.” This process took several years, and some disciplines began the work earlier than others. The centers consist of a mix of full-time advisors and faculty so that students are advised by individuals who understand the nuances of the programs within the meta-major, are knowledgeable about the curriculum, and are able to advise students both academically and from a career perspective. This model enables the college to provide holistic support to students and offers students a central resource center for all of their academic and career needs.

2. Building Capacity and Function

- **At nearly every college, there were one or more persons who “owned” advising redesign, but colleges typically included other student support departments, faculty, and college leaders in this work.**
- **Long-term technology vendor relationships were crucial for colleges in selecting, implementing, and sustaining the use of advising technology.**
- **Colleges improved advising practice and career advancement opportunities by providing early and ongoing professional development for primary role advising staff.**

Progress Made

Nearly every college established cross-functional teams to facilitate the integration of their advising redesign work. Some colleges included faculty on these advising redesign teams to foster a collaborative relationship around academic supports, such as using early alerts and referring students to tutoring. And like some other colleges, Northeast Wisconsin Technical College (NWTC) created new roles or positions that were dedicated to key components of its advising redesign work. NWTC hired someone to oversee the early alert program as well as to coordinate peer mentors to provide support. Seattle Colleges and Ramapo College created new roles for existing faculty and staff to oversee early alert and case management technology and act as primary liaisons with vendors.

Adopting useful technologies has been central to the idea of making advisors’ work with students more effective and efficient. And, indeed, one of the most important and complex aspects of advising redesign among iPASS colleges has centered on relationships with technology vendors. Interviewees described frequent and ongoing communication with vendors as critical to supporting technology launch, integration, and support; indeed many interviewees said that they sometimes communicate with vendors daily or several times each week. At least one college included advisors in its early negotiations with a vendor to ensure that end-user voices were being considered from the beginning. Many interviewees described the benefit of remaining close with vendors over time in order to gain access to experimental technologies and to influence the development of new products and features. Several even said that they or other college staff sometimes partner with vendors to write papers and give presentations, in part as a strategy for nurturing their vendor relationships.

Interviewees also underscored the importance of training and development for advising staff in moving the redesign work forward, in terms of both technology and advising practice. As part of this endeavor, several colleges implemented new onboarding procedures for advisors focused on skills needed in using technology, knowledge to better provide high-quality financial aid advising and career counseling to students, and training in undertaking culturally relevant advising practices aimed at better understanding diverse students’ backgrounds and practical concerns. For ongoing support and professional development, several colleges developed new procedures or innovations, such as assigning a point-person for professional development and train-the-trainer opportunities. To provide career mobility for advisors, leaders at the University of North Carolina at Charlotte developed a career ladder so that advisors could advance within the college. When possible, the colleges enabled advisors to attend conferences and institutes aimed at further developing their skills.

Ongoing Work

Interviewees agreed almost universally that the case management technology their advisors were using functioned as intended and was well received by advisors. Advisors were using the technology to store case notes, access data, and, in some cases, make referrals to other college services such as tutoring. However, several said that they were still trying to find affordable degree planning tools that had interactive features for students and advisors to use. For example, some colleges are looking for functionality that enables users to conduct “what if” queries to assess the consequences of taking a certain combination of courses or of changing a major.

Another issue that colleges continue to struggle with is the integration of technology systems. Because most colleges use multiple platforms—student information systems, course catalog systems, learning management software, case management technology, early alert systems—challenges remain in getting them to “talk” to each other in ways that facilitate student support and enable holistic data analysis. One interviewee mentioned having to manually input course information into a degree planning system. Another said that their college was exploring cloud-based resources as a means to integrate their technology systems.

In many cases, software programs have not functioned as stakeholders believed they would. Several of the colleges abandoned technology after multiple years of attempting to implement the associated tools, which cost time and money. One participant described the student support technology industry as the “Wild West,” with vendors sometimes over-promising and under-delivering and setting inconsistent prices for their products. Leaders at colleges that ended contracts with vendors described implementing or being in the process of acquiring technology that they believe will better meet their needs. They reflected on the initial process as a learning experience and believe they are now better equipped to successfully assess the quality and abilities of technology and vendor support.

Doña Ana Community College: Collaborating with the State University to Upgrade Technology

For its advising redesign work, Doña Ana Community College (DACC) in New Mexico focused less on structural change (they found that their existing split model of advising was serving students well) and more on technology and process change. As part of the New Mexico State University (NMSU) system, DACC worked closely with the university system office for major technology purchases—the idea was that all institutions in the system should use the same technology for student record-keeping, learning management systems, and other functions relevant to advising. Early in the iPASS grant period, NMSU began working with a vendor but grew disappointed with the progress being made. After about 18 months, the system decided to end its contract with that vendor. After about another year, the university acquired technology from another vendor that served its needs, which included case management, communication, and early alert functionalities. Fortunately, the platform was up and running right before the pandemic started, and DACC and NMSU were able to leverage the new technology to facilitate remote advising fairly seamlessly. Nevertheless, the college and university system lost over two years because of technology implementation issues.

The current technology they use is robust and intuitive, but because it has so many features, DACC has been facilitating ongoing trainings for advisors and faculty. DACC has leveraged its learning management system to create a learning platform for advisors and faculty with special training modules for transfer and career-technical education (CTE) advising. The college also provides training modules for “para advisors,” who assist in lab-based courses. The next step for the college is to move from a degree audit function to a full education planning function that is completely online, which will require additional training of advisors and faculty.

3. Managing the Change Process

- Colleges created and sustained working groups dedicated to advising reform, even as individual participation in those groups changed over time.
- Ongoing communication with multiple stakeholder groups, especially when college leaders were involved, was critical in fostering buy-in and maintaining momentum.
- Colleges valued the external support they received from Achieving the Dream and EDUCAUSE during the grant period, especially their guidance on change management, technology considerations, advisor training, and the opportunities they provided for networking with cohort colleges.

Progress Made

Interviewees we spoke with emphasized the importance of change management and discussed how their colleges supported change and sustained enthusiasm for advising redesign over the long term. Nearly every college maintained work teams focused on improving advising and student support experiences—including after the grant period ended. Though individuals would move on and off the teams over time and some projects would come to a close, the teams themselves endured, which helped to ensure that reform efforts continued and that improved advising remained a high priority. At Seattle Colleges and Colorado State University, for example, advising teams—many of which have been doing this work together for years—continue to meet regularly, to meet with other college departments, and to consult with vendors to move the work forward.

One interviewee described how their college intentionally broke the original core iPASS grant team into multiple teams to maintain attention on key topics such as technology adoption and advising practice. Two other interviewees noted that while their colleges had experienced little attrition on work teams, they were nonetheless concerned that if someone left a group the dynamics could change and the work could be disrupted. They are therefore beginning to think more strategically about team attrition and about planning for changes in personnel.

Involvement by college leadership also emerged as being critically important to change management. Several interviewees discussed how support from leaders such as presidents, executive vice presidents, and provosts proved invaluable in elevating the importance of advising and student support as well as in motivating buy-in for the changes associated with the redesign work. In many cases, college leadership explained to various departments and divisions how improved advising supported the strategic goals of the institution, enabling stakeholders across the college to understand why directing resources to advising would support student success work more broadly.

Many of the colleges developed regular forums for communication to provide information, promote transparency about relevant changes, and ensure that faculty and staff across the institution knew that advising was a strategic priority. One interviewee described their college's ongoing "roadshows" to campuses and departments as a strategy to keep the lines of communication active. Another interviewee—a high-level administrator—described monthly lunches with advisors to field questions, solicit feedback, and provide updates from college leadership. The conversations were not always easy. In one case, for example, Zane State Community College representatives had to report on setbacks they had experienced with technology implementation. They in fact abandoned some of their software acquisitions, which was costly. Yet the transparency in recounting this news was likely helpful in gaining trust and commitment in the long term. Zane State's leadership continued to communicate regularly with faculty and staff about the technology issues while also emphasizing the importance of advising

for student success. The college's faculty and staff remained engaged in the work and did not let the technology setbacks prevent them from focusing on improving their practice.

Throughout the three-year grant period, the iPASS colleges received technical assistance from Achieving the Dream and EDUCAUSE, and these organizations also provided multiple opportunities for redesign participants at the colleges to network with one another, sharing ideas, challenges, and milestones that were meaningful to their colleagues. Every interviewee that was involved in the initial grant period reflected positively on those experiences, describing them as critical to garnering information and ideas and, at times, commiserating about challenges such as technology acquisition and the sometimes slow adoption of technology by faculty and advisors. The interviewees said that Achieving the Dream and EDUCAUSE provided change management training for college leadership and were instrumental in helping them both gain knowledge on how to improve advising and to manage the change process required in such wide-ranging reform.

Ongoing Work

As the colleges continue their advising redesign work, college leaders in particular are thinking about how they can enable advisors and faculty to play a more prominent role in decision-making around advising redesign and broader strategic planning at the college. To facilitate this, some colleges and college leaders are thinking about how to extend change management training to a broader range of stakeholders.

Most interviewees also discussed issues of student equity at their institutions and the urgency of offering students support for basic needs, emergency financial needs, and technology equipment. More broadly, many of the colleges are still in the early stages of thinking about how best to align equity and diversity goals with their advising redesign work. Some colleges have been exploring or implementing training to improve advising practices for students from diverse backgrounds. For example, the Community College of Philadelphia, whose equity work is ongoing, offers diversity certificates to advisors and faculty for completing programs such as LGBTQ sensitivity training and first-generation student success training.

University of Texas at San Antonio: Fostering Buy-In for Centralized Advising

For many years, the University of Texas at San Antonio (UTSA) had a decentralized advising department composed of full-time and part-time primary role advisors, none of whom had a designated caseload or used a shared technology system for notes. The procedures advisors used with students and with one another were disparate and inconsistent. UTSA thus decided to do several things: bring the advising staff under more unified leadership, move to an all-full-time advising staff, and centralize and standardize technology use and case management processes. This represented a significant change, and many advisors expressed concern about "losing control" and "being replaced" by technology.

To address staff concerns, the university engaged in multiple strategies. It reached out to students via a survey to learn what they appreciated about advising and what they believed could be better. Administrators used that information to commend the advising staff for positive feedback from students and facilitate conversations about potential growth and development. UTSA also created a centralized training and development program so that every advisor was receiving the same guidance and messaging. Early on, advising redesign leaders and IT representatives met with each advisor on campus to better understand what they needed and how they worked so that technology decisions would be made with the end-user in mind. Redesign leaders also leveraged "champions"—advisors who supported the work—to act as facilitators in helping other advisors understand and feel more comfortable about the changes. They also met with advising staff to develop and build consensus around a definition of what good advising should consist of at the college, and advisors worked to create a culture of support for one another as a centralized team.

Conclusion: Lessons for Other Colleges

The iPASS colleges we studied have been involved in the substantial reform of advising practices for at least five years. Our interviews with redesign leaders at these colleges point to lessons and practical ideas that may be helpful to other colleges undertaking similar reforms.

- In planning for and engaging in advising redesign, place the student experience at the forefront of the work. Consider soliciting and including students' insights and feedback.
- Identify a person or persons who will “own” the work of advising redesign, particularly at the nexus of technology use and advising practice.
- Consider working with intermediaries that can provide recommendations, share knowledge from working with other colleges, and potentially connect a college with peer institutions that may be at similar stages of the work.
- Take a long view of technology acquisition and implementation during the planning process. Involve a diverse group of stakeholders (including end-users) from the start—including in vendor research and procurement negotiation—and consider working with vendors that have a reputation for treating colleges as partners.
- Support working groups to engage in the redesign over the long term, and encourage participation not only of administrators, faculty, and IT and advising staff but also of personnel from other support areas within the college such as career counseling, financial aid, and tutoring. Consider using a rotating and diverse group of stakeholders to ensure inclusive participation across the college, to prevent groups from becoming insular, and to mitigate disruptions from attrition.
- Facilitate transparent communication about redesign efforts, led in part by college leadership, that provides information about changes in college processes and connects the work to broader institutional goals. Discussion about advising redesign can happen at large gatherings such as convocation as well as in small venues such as regularly scheduled meetings with groups of advisors, faculty, and other staff.
- Consider how issues of equity, such as closing equity gaps and embedding culturally relevant advising practices, should be addressed in the planning phase of the work.

It is important to keep in mind that advising reform is an iterative process—technology evolves, new ideas emerge, student characteristics change, and even the strategic direction of the college may shift over time. Advising work is probably best conceived not as a single initiative but as an ongoing, sustained commitment to supporting students in a dynamic and complex environment. In the five years since they began their involvement with iPASS, the colleges we spoke with have made substantial progress. The colleges have placed the student at the center of decisions that they make about structuring and delivering advising and student support, and their advising technologies are for the most part well established. The colleges continue to modify and refine how advising is conducted, what tools are used, and how those tools are integrated across departments. The work of these early adopter colleges may be instructive for other institutions that are planning for or implementing advising reform using innovative technology.

Endnotes

1. There are several ways advising and student support may be structured. Colleges may opt for a model in which students are assigned to a primary role advisor for the duration of their time at the institution. There is also a split model in which students meet with a full-time advisor for some period of time and then are transitioned to a specialist advisor or a faculty member for advising as they advance through their programs. Colleges also vary in how they organize advisor assignments, with some colleges assigning students to advisors and requiring them to meet at certain points in time—a case management approach—while other colleges present advising as optional for students. Colleges may also encourage different advising arrangements depending on student background or characteristics such as major, transfer status, or special program participation.
2. Earlier work by CCRC may be useful in considering some of these questions (Belfield et al., 2019).

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