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This chapter examines the use of technology and other structural changes to encourage comprehensive advising reforms.

Transforming the Community College Student Experience Through Comprehensive, Technology-Mediated Advising

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Navigating college is complicated. As Scott-Clayton (2011) points out, incoming community college students must choose whether to attend college full time or part time; consider an array of potential programs, majors, and transfer options; and choose from a long menu of courses. Qualitative evidence from community colleges suggests that the complexity of academic decision making results in student mistakes, such as graduating with "excess credits" or earning credits that do not transfer to a student's chosen 4-year destination (Bailey, Jaggars, & Jenkins, 2015).

To help guide students through the landscape of program and course options, all colleges provide academic advising services; unfortunately, most community colleges can fund only one advisor for every 800 to 1,200 students (Karp, 2013). To provide the sustained, extensive, and personalized support that is necessary (Karp & Stacey, 2013), colleges would need to substantially increase their number of academic advisors. Given increasing enrollments and decreasing public allocations, community colleges need more cost-effective solutions.

In this chapter, we examine strategies to help transform academic advising to provide sustained, personalized support within the resource constraints faced by community colleges. We first describe typical community college intake and advising processes and a vision for transforming them. As an initial step toward this transformation, many community colleges are adopting "e-advising" technologies that they hope will allow them to deploy scarce advising resources more efficiently and effectively. Using case study data gathered from several community colleges engaged in technology-mediated advising reforms, we suggest that e-advising tools may be most

New Directions for Community Colleges, no. 176, Winter 2016 © 2016 Wiley Periodicals, Inc.
Published online in Wiley Online Library (wileyonlinelibrary.com) • DOI: 10.1002/cc.20222

effective when they prompt colleges to rethink and restructure delivery of an array of services and programs into a more cohesive and intentional whole.

Advising at a Typical Community College

Due to high numbers of students who must be processed within the few weeks prior to a new semester, initial advising meetings at a typical community college may be as short as 10 or 15 minutes (Grubb, 2006; Jaggars & Fletcher, 2014). Within this short time frame, advisors review the student's developmental education placement test scores and create a suggested course schedule for the first semester based on those placements (Bailey et al., 2015). Typically there is no time for an in-depth discussion of the student's interests and strengths, potential transfer schools, career planning, or how the student might embark on an exploration of those issues. Although students who have already decided on their program of study may be pleased with such a speedy and efficient meeting, those who are undecided often feel confused and frustrated and may want advisors to take more time to understand their individual situation and tailor a set of courses to their needs (Jaggars & Fletcher, 2014). To create a more supportive advising system without substantially increasing costs, community colleges have increasingly adopted three interconnected strategies in the past decade: enhanced advising for academically vulnerable students, online advising information provision, and student success courses.

Enhanced Advising. Ideally, academic advisors help students explore their skills and interests, investigate various occupational and professional career paths that may match those interests, and create a coherent plan for academic and career progress (Gordon, 2006; Holland, 1997). Across the span of the student's time in college, the advisor may continue to help the student reexamine goals and reformulate a plan to meet those goals.

At most community colleges, academic advisors are far too overburdened to provide such intensive and ongoing advising to all students. However, many colleges provide "enhanced" advising programs, including mandatory meetings, an assigned advisor for each student, and longer advising sessions, to small, specific populations deemed to be particularly at risk. Rigorous studies of enhanced advising suggest that this approach has positive impacts on student performance and retention (Bettinger & Baker, 2014; Scrivener et al., 2015; Weiss, Brock, Sommo, Rudd, & Turner, 2011). These studies also find that more-intensive models (such as a mentor who reaches out to assigned students regularly to discuss priorities, identify academic and nonacademic barriers, and create plans to overcome those barriers) have stronger and longer term impacts than less-intensive approaches to enhanced advising. The sustained effects of the more-intensive models may be due to their focus on helping students develop self-reflection and planning skills, which allows them to more successfully self-advise in subsequent terms.

Online Information Provision. In the absence of personalized assistance, many students turn to the college website to understand the programs available, whether a potential program is a good fit for them, and the steps necessary to complete the credential. Ideally, the website should provide detailed information about each program, allowing students to answer questions such as: How long does the program take to complete, and which specific courses are required? What are graduates' typical occupations and entry-level wages? Do articulation agreements with nearby colleges guarantee graduates junior-level standing in a related major? Unfortunately, most colleges' websites do not feature such detailed and clear information, and even when such information is available, many students have difficulty interpreting and applying it without assistance from an advisor (Jaggars & Fletcher, 2014; Margolin, Miller, & Rosenbaum, 2013; Van Noy, Weiss, Jenkins, Barnett, & Wachen, 2012).

Student Success Courses. One approach to providing students with more sustained advising is the student success course, also known as College 101 or Introduction to College. These courses, offered in most colleges around the country, provide students with information about campus and basic success skills. Research shows generally positive outcomes for students (for example, Cho & Karp, 2013; Schnell & Doetkott, 2003). However, these effects tend to fade over time (Rutschow, Cullinan, & Welbeck, 2012; Weiss et al., 2011), suggesting that student success courses may need additional refinement if they are to promote sustained student success.

Qualitative research provides one possible explanation for this fade-out effect (Karp et al., 2012; O'Gara, Karp, & Hughes, 2009). In-depth examination of student success courses at three colleges found that they typically cover a wide range of content in a short period, leading to teacher-directed, lecture-based pedagogies focused on "covering all the topics" rather than on fostering deep learning (Karp et al., 2012). As a result, student success courses effectively deliver important information for students but may not help students develop the ability to use their newfound knowledge in future courses.

A Vision for Transformation

Enhanced advising for small subsets of students, online information provision, and student success courses are all good steps forward, but even when applied together, they are insufficient to meet students' needs. Drawing from ongoing innovations and research in the field, researchers and practitioners are beginning to understand that student support services require a more significant transformation, which some colleges are beginning to implement through three additional and interrelated strategies: simplifying program and transfer structures, more explicitly teaching students how to self-advise, and leveraging online "e-advising" tools to make advisors' work more in-depth, effective, and efficient.

Simplifying Program and Transfer Structures. Students would not need as much advising if their choices were less complex. For example, some community colleges offer highly structured career-technical programs, including a very specific sequence of courses to be taken in lockstep with a peer cohort (Van Noy et al., 2012). After making the decision to enter such highly structured programs, students have no need for further advising in course selection: all students take the same courses together throughout the remainder of the program. However, such a lockstep approach is not feasible for most students (Bailey et al., 2015). A majority arrive on campus undecided on their program of study and need time to explore their options; moreover, transfer-oriented students need flexibility in course selection to meet the requirements of their particular transfer destination. Other students need flexibility to balance school and family or work obligations.

To provide an optimal balance between clear-cut structures and flexible opportunities for exploration, practitioners and researchers are increasingly interested in the "guided pathways" model (Bailey et al., 2015). In this model, students who have chosen a major or program are provided with a program map that defines a default sequence of courses, which are aligned with requirements for successful transfer or career advancement. New students who are undecided about a major are required to choose one of a limited number of exploratory or "metamajors" that expose them to educational, career, and transfer options within a broad field (such as business, health, or liberal arts). The metamajors also include program maps of default sequences of courses, with the first semester's courses providing a foundation applicable to any major within the metamajor. The program map strategy not only eases students' course selection decisions, but also makes it possible for advisors to track progress and intervene if students are not making headway or straying "off-map."

Teaching Students How to Self-Advise. Some students are more adept at self-advising than others. For example, a recent study gave students information and asked them to respond to advising scenarios (Jaggars & Fletcher, 2014). A handful of students earned nearly perfect scores, whereas other students attempting the same scenarios with the same resources were unable to find and apply the appropriate information.

Self-advising is a skill, and similar to any other skill, it is one that could be taught by the college. To teach students self-advising skills without substantially increasing advising staff, colleges might consider mandating an orientation for incoming students to expose them to available online tools and provide practice in using them. Beyond that initial exposure, however, students need ongoing practice in how to identify their interests, sift through and interpret related information, set long-term goals, and plan out steps toward those goals. This type of practice could be built into a mandatory first-semester student success course focused on building the metacognitive skills students need to effectively self-advise. More broadly, colleges may also need to consider how their general education curriculum

can incorporate instruction and practice in how to find, interpret, weigh, and apply information to make decisions.

Leveraging More Sophisticated E-Advising Systems. A growing array of e-advising products may help colleges improve and expand the online component of their advising services. In particular, tracking or early alert systems can help colleges identify students who are struggling in key courses within their major, who are enrolling in courses inappropriate to their major, or who are demonstrating poor attendance or academic performance. By identifying struggling students early, colleges can intervene before small problems become insurmountable. These systems can also help streamline case management and information-sharing across college personnel.

E-advising systems can also encourage "triaging," in which colleges determine which students' advising needs can be handled through automated systems, versus which students require intensive face-to-face advising. For example, recent research finds that students value independent engagement with technology for relatively straightforward advising functions, but value one-on-one interaction for more complicated decision making (Kalamkarian & Karp, 2015).

E-advising systems may allow colleges to "do more with less" by using advisors' time more efficiently and effectively. To reach this goal, however, advisors and other staff may need to do their jobs differently. For example, triaging enables some students to bypass advising centers in favor of self-advising, thereby freeing up advisors to spend more time with students with more profound needs. But such a change requires advisors to rethink how they help some students learn to self-advise, as well as how they work with other students in a more long-term, in-depth, and developmental manner.

Barriers to Successful Advising Transformation

Like any comprehensive reform, colleges engaging in the types of transformative advising change described here and throughout this volume encounter multiple challenges. Advising reforms are particularly difficult because they require both structural changes (for example, revised programs of study) and changes in how advisors perform their everyday work tasks. The Community College Research Center (CCRC) recently studied six colleges engaging in technology-enabled advising reforms ("Integrated Planning and Advising Services," referred to as IPAS), in which we examined the colleges' redesign, implementation, and roll-out processes. Importantly, although IPAS reforms included a technological component, they also included other pieces of advising redesign, such as encouraging program planning or launching early warning systems.

Over the course of 18 months, CCRC interviewed faculty, staff, and students to understand their attitudes toward, experiences with, and changed

practices resulting from IPAS implementation. Next, we discuss a number of challenges observed as these six colleges sought to transform advising.

Colleges Focused on Technical Rather than Adaptive Change. Technical change involves straightforward problems with known answers; adaptive change involves unclear problems, or problems with unknown solutions (Heifetz, 1994). Getting e-advising products up and running is a technical change. Although the challenges involved are often time consuming, they can be surmounted through knowledge-gathering and clear-cut problem solving. In contrast, the transformation of advising is an adaptive change: no specific solutions exist for how to restructure student support services, especially within the resource constraints that often face community college advising departments. For example, there are no obvious ways to ensure that advisors use e-advising products once available, nor that college faculty will adopt metamajors and simplified program structures.

When organizations or groups confront adaptive problems, they often switch their focus to technical issues, as these are more easily solvable and do not require hard conversations about unspoken assumptions (Heifetz, 1994). Similarly, the colleges in our study tended to focus on the technical aspects of reform, such as deploying e-advising systems, rather than the adaptive aspects, such as changing advisors' work. As a result, although all of these colleges implemented IPAS systems, after 18 months, few saw meaningful changes in how advisors actually did their work or how students were supported. Although focusing on the technology seems like an obvious first step, it may be wasted if it is not conducted in parallel with the more challenging work of figuring out what to do with the technology once it is deployed.

Colleges Lacked a Clear Vision. Comprehensive reform requires a clear vision of benefits—an actionable and shared image of what the reform will look like in practice and why it will address key problems (Karp & Fletcher, 2014). A clear vision helps stakeholders understand what they will be expected to do once the reform is complete and why. A vision also helps stakeholders focus on the adaptive changes described previously, by providing a framework for thinking about norms, behaviors, and assumptions that contribute to changed practices.

Colleges in our study had a broad sense of what they wanted their reform to accomplish, but this vision often lacked specificity. For example, a college may have wanted their reform to reduce complexity and improve students' advising experiences but could not articulate how the reform would accomplish those goals. It is difficult for advisors to meet a vague goal such as "improve students' experiences." When they are provided with a clear vision, such as "meet every semester with a cohort of students to help them plan their long-term programs, and connect them to community resources that address out-of-school challenges," advisors can understand what is expected of them and shift their practices accordingly.

We also found that some colleges had multiple competing visions between stakeholders. For example, at one institution, the college leadership viewed advising reforms as a way to create holistic support for students, whereas project leadership viewed them as an attempt to create efficiencies and make their work lives easier. Without a shared vision, colleges struggled to translate their reform into changed practice. Advisors lacked clear guideposts and so continued to do their jobs as they always had.

Colleges Encountered Challenges with Triaging. Colleges in the study were enthusiastic about the potential of e-advising technologies to help triage students; however, they struggled to answer a number of challenging questions. For example, at what point in the semester should faculty be encouraged to identify and flag struggling students? Perhaps 3 weeks into the semester is too early for faculty to accurately identify who is struggling; yet if it is much later, students may not have time to recover from early stumbles. If a student is flagged, how should the intervention be handled, how often should the student be contacted, and what type of message would be most effective?

Colleges were also overwhelmed by triaging information and lacked processes to address the needs of identified students. For example, one college instituted an IPAS system that made it easier for faculty to raise flags when students struggled. The system worked: faculty raised thousands of flags in the first semester of system activation. All of these flags, however, were sent to a single individual who was unable to sort through them, identify which were most urgent, and direct students to appropriate supports in a timely manner.

In general, triaging is useful only if identified students can be subsequently supported. Some colleges lacked a robust set of student services. In these colleges, identifying struggling students was only minimally helpful, because there was no way to meaningfully intervene and provide them with help once they were identified as needing support. To free resources to support some students more intensively, advisors and faculty had to allow other students to self-advise using online resources—a strategy that raised an additional set of challenges.

Some Students Resisted Self-Advising. Some students at the six colleges were enthusiastic about self-advising, many others were not. Some students preferred in-person advising because they did not know how to self-advise, a problem that could be addressed through an orientation or student success course. Many students needed help wading through complexity, a problem that could be addressed by streamlining programs. For others, however, the "personal" touch was important: some may have faced unique challenges that required the creative problem-solving power of an expert, and some may have felt a degree of anxiety that could be allayed only through the reassurance of human contact.

Students were most amenable to self-advising when engaged in activities that were administrative in nature, such as registering for classes.

They also were open to technology as a way to receive encouragement and support from college personnel, for example, via email. However, for in-depth advising activities, such as deciding on a major or creating a long-term plan, students preferred to meet in person (Kalamkarian & Karp, 2015).

Lessons Learned

Of the six colleges in our study, several moved their IPAS reforms forward. Their experiences provide lessons for other colleges seeking to engage in transformative advising reform.

Engage in a Long-Term Planning Process. The colleges that made the greatest progress also spent substantial upfront time planning for new processes and structures, engaging cross-functional and cross-hierarchical stakeholders in the visioning process. They thought deeply about their current student support mechanisms, what they hoped to accomplish, and how current processes would change. For example, one college documented students' experiences from recruitment through graduation and designed reforms to address service gaps and major loss points. Rather than selecting strategies from externally defined "best practices" or based on the newest technology, they focused on what advisors and other personnel would need to do to better support students and then selected strategies and technologies that would help them achieve those specific goals.

Regard Technology as a Means, Not an End. The most successful colleges thought about structures, not products: they designed their reform first and identified the technology later. By focusing on broader reforms, rather than on technology per se, colleges pushed themselves to confront and address adaptive challenges. This approach also enabled colleges to be more nimble. In contrast, colleges that started with a product and designed a reform around it tended to feel constrained by the limits of what the product could do.

Simplify. Simplification reduces student confusion and the need for advising. Some colleges simplified advising structures, for example, with one-stop shops or assigned case managers. Some colleges simplified curricula, thereby moving closer to the broader and more comprehensive reform known as "guided pathways" (Bailey et al., 2015).

Teach Students to Self-Advise. Although students often resist self-advising, in some colleges, staff also resisted it because they did not believe students had the metacognitive or organizational skills to self-advise. To help teach students these skills, a number of colleges implemented, revised, or were considering student success courses to focus on self-advising. Such courses may be particularly effective when they give students the opportunity to practice skills such as program planning as part of the curriculum (Karp et al., 2012).

Conclusion

Comprehensive advising reforms often rely heavily on technology, but the technology alone is insufficient. Advisors and faculty must also rethink how they "do business," by simplifying program pathways, designing and implementing case management processes, and teaching students how to self-advise. Although the challenges of transformative reform are steep, they are not insurmountable. By committing to sustained visioning, planning, and ongoing improvement, colleges can achieve the goal of comprehensive support for all students.

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