Redesigning the Student Intake and Information Provision Processes at a Large Comprehensive Community College

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Abstract

Many community college students are overwhelmed by the number and complexity of choices they face in navigating college, leading to suboptimal decisions that can waste their time and money or that can divert them from a promising academic or career path. This case study describes how a large, suburban community college planned and implemented a relatively low-cost redesign of its student intake and information provision processes in an attempt to reduce confusion and increase student success. In carrying out the redesign, the college solicited and responded to the perspectives of students and frontline staff, and the college administrators and faculty who led the redesign made a concerted effort to cultivate trust and promote collaboration. Preliminary results suggest that the redesign improved the student experience, increasing the proportion of students who found the college's orientation to be very helpful and improving their performance on self-advising tasks. The concluding section of this paper discusses additional possibilities for low-cost improvements to help students navigate college, including 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.

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1. Introduction

Community college students are often confused and sometimes overwhelmed by the complexity of choices they face in navigating college. As a result, many students make "mistakes"—unexamined decisions that waste their time and money or that divert them from a promising academic or career path. In an era of constrained financial resources, including student–advisor ratios that can exceed 1,000:1, community colleges are struggling with how to help their students more effectively navigate the wide range of choices they must make.

In this case study, we describe how one Midwestern suburban community college—Macomb Community College—undertook a redesign of its student intake and information provision processes in an attempt to help its students successfully navigate through the complex institution. The challenges it faced are not unlike those faced by comprehensive community colleges and open-access four-year universities across the country; thus the experience at Macomb may help inform the process of redesign at other colleges.

1.1 Background Literature and Statement of the Problem

Navigating college is complicated. As Judith Scott-Clayton (2011) has pointed out, incoming college students make a myriad of complex academic decisions. For example, they must choose whether to attend college full-time, part-time, or less. They must choose which type of degree or certificate to pursue—and at a large comprehensive college, they may choose from a menu of over one hundred programs or majors. Moreover, each of these program choices is not necessarily clearly defined in terms of its costs and benefits, because many programs provide only partial information about the content, difficulty, and sequencing of courses, and about the program's long-term career and salary prospects. Students must also consider that course choices in their first semester will impact the set of choices for the following term; that within any given subject area, courses may be transferable or nontransferable, college-level or remedial, for-credit or noncredit; that some courses may count for financial aid purposes but not for graduation, or vice versa; and that they may have to make tradeoffs depending upon the

vagaries of class schedule offerings and work schedules. Term after term, this process must be repeated.

Adding to this complexity is the inclusive nature of community colleges, which seek to support a wide array of students, including traditional and nontraditional, daytime and evening, part-time and full-time, and career-oriented as well as academic transfer–oriented students (Grubb, 2006). To meet the needs of their diverse student populations, these institutions offer a complex variety of programs and courses, such that the typical community college student may face a far greater number of choices than a peer enrolled at a nearby four-year institution (Scott-Clayton, 2011).

While choice and flexibility have always been major selling points of U.S. higher education, recent work by psychologists and behavioral economists outside of education provides compelling evidence of a dark side of too much choice and flexibility. For example, rigorous studies of retirement planning and health care choices find that individuals systematically make mistakes when decisions are highly complex and are based on limited personal experience (Beshears, Choi, Laibson, & Madrian, 2008). When faced with too many options, particularly when these options are not clear-cut in terms of their short-term and long-term costs and benefits, individuals tend to avoid or delay decision-making, and often feel less satisfied with their ultimate choice (Botti & Iyengar, 2006). With respect to choices students face, if a community college student is unsure which courses to take next semester, the easiest decision may be to delay course enrollment for another semester or year (Scott-Clayton, 2011). If that "easy" postponement decision is repeated semester after semester, then the student becomes a de facto college dropout, without ever having made an active decision to drop out. Alternatively, directionless students may enroll in a seemingly random slate of courses (including, e.g., any interesting-sounding course that has an open slot) only to find they have wasted time and money on courses that will not apply toward their chosen degree (Grubb, 2006; Nodine, Jaeger, Venezia, & Bracco, 2012; Rosenbaum, Deil-Amen, & Person, 2006).

Qualitative evidence from community colleges suggests that the complexity of academic decision-making results in student mistakes. For example, 42 percent of community college students in one study indicated that they did not have enough

information about requirements and prerequisites (Rosenbaum et al., 2006); many associate degree earners discover they have taken quite a few excess credits (Auguste, Cota, Jayaram, & Laboissière, 2010; Complete College America, 2011; Zeidenberg, 2012); and transfer students often earn credits that are not guaranteed to transfer to their chosen four-year destination (Hodara & Rodríguez, 2013). Perhaps enrolling in *some* excess or non-guaranteed credits is appropriate. For example, students may intentionally take courses that are not in their program of study but that are nevertheless relevant to their personal or career goals. However, qualitative evidence strongly suggests that the typical student is more confused than intentional about course selection decisions (Grubb, 2006; Kadlec & Gupta, 2014; Nodine et al., 2012; Public Agenda, 2012; Rosenbaum et al., 2006).

To guide students through the landscape of program and course options, both two-year and four-year colleges provide students with academic advising. According to theoretical models of academic advising (see, e.g., Gordon, 2006; Hartung & Blustein, 2002; Holland, 1997; Krumboltz, 1996; Lent, 2005; O'Banion, 1972; Super, 1990), the process includes two components. First, advisors help students explore their own skills and interests, and investigate various occupational and professional career paths that may match those interests. Second, after students have identified their preliminary education and career goals, an advisor works with each student to create a coherent plan for academic and career progress. 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.

While this intensive and personalized approach to advising may be ideal, few community college students experience it. Due to financial constraints, most community colleges are able to fund only one advisor for every 800 to 1,200 students (Gallagher 2010; Grubb, 2006; Rosenbaum et al., 2006). As a result, students' interactions with advisors may be short, rushed, and infrequent. While students at elite institutions may overcome such limitations by consulting with family or friends who went to college, community college students are often the first generation in their families to attend college and thus may lack the social resources that could help them successfully navigate academic decision-making (Deil-Amen & Rosenbaum, 2003). In comparison to elite

university students, community college students also must deal with more financial pressures and family obligations, which further complicate their lives and may tax their mental and emotional capacities to make good decisions (Johnson & Rochkind, 2009).

Moreover, even if community college students made exactly the same types of academic mistakes as did elite students, they might be more likely to be derailed by those mistakes (Bertrand, Mullainathan, & Shafir, 2006). For example, a student from a high-income family who discovers she has taken a course that does not count toward graduation or transfer can shrug off the time and money spent as a minor hassle. In comparison, for a low-income student, the time spent on a course translates to at least a full week of time away from wage-earning. Those forgone wages, together with any tuition not covered by financial aid, may require cuts in basic household expenses for items such as groceries, insurance payments, or children's clothing. To realize that such painful sacrifices were wasted on an unnecessary course is not a minor hassle. The outsized consequences of small mistakes imply that low-income individuals can afford fewer mistakes, and they may feel the need to avoid or exit situations that tend to cause them.

Perhaps the most straightforward approach to addressing the complexity of the community college experience is simply to enhance student advising. There is evidence that doing so improves student outcomes (Bettinger & Baker, 2014; Scrivener & Weiss, 2009). Yet enhanced advising is costly; to achieve substantial and college-wide effects, most institutions might need to quintuple their number of academic advisors. Given their increased enrollments and decreasing public allocations, community colleges need more cost-effective solutions. Some potential solutions include using technology to streamline bureaucracy, designing more coherent programs, constraining the curriculum within a specific course of study, and restructuring organizational procedures (Scott-Clayton, 2011). As they consider such strategies, colleges should first work to understand their current landscape and the process by which students make academic decisions.

1.2 The Case Study

In this paper, we document how one large comprehensive college—Macomb Community College, located outside of Detroit, Michigan—worked with the Community

College Research Center (CCRC) to understand barriers to high-quality student academic decision-making and then redesigned its intake and information provision systems in order to help overcome those barriers. We begin by describing the exploratory data collection and analysis phase of the process, in which CCRC worked with the college to investigate the complexities facing students and to generate relatively low-cost recommendations for improvement. As a result of this first phase, the college established two work groups we call redesign teams, which focused on redesigning intake and information provision; we discuss the process and results of that work in a subsequent section on the redesign's implementation and preliminary results. Finally, in the concluding section of the paper, we discuss larger implications and recommendations for the field.

2. Exploratory Data Collection and Analysis: Understanding the Challenges of Complexity and Generating Low-Cost Recommendations

During the spring and summer of 2011, CCRC researchers worked with the college's leadership to collect data on the student experience, based on a comprehensive document review, interviews with key staff, and student focus groups. (Below, we summarize the overall methodology and findings; for more methodological detail, see the appendix.)

First, to understand the overall landscape of the college, CCRC researchers reviewed dozens of documents, including new student orientation materials, course catalogs and schedules, program web pages, online student portal tools (such as the online degree audit function), meeting minutes from a standing committee on student services improvement, and results from previous student surveys and focus groups on a variety of relevant topics.

Second, to capture the college's current understanding of the student experience, CCRC researchers met with a variety of college personnel. We conducted a group interview with career services staff to understand the services they provided to students and their perspective on the frustrations and challenges that new students face. We conducted one-on-one interviews with all of the college's full-time counselors and

advisors to understand the services they provided, how those services currently helped students, and how they thought the college could improve the student experience.[1] And we met informally with the director and assistant director of admissions, the vice president of student services, the director of financial aid, and supervisors of the front-desk staff in the counseling and advising offices.

Third, we conducted eight focus groups in June 2011 with recently enrolled first-time students. Focus group topics included students' information needs, experiences navigating the college upon entry, ongoing experiences with college services such as counseling and advising, and experiences using the online student portal. Focus group discussions lasted about two hours per group; each participating student was paid $75 to reimburse them for their time.[2]

2.1 Exploratory Findings

Overall, we found that students were confused about how to navigate the college's intake process and how to make decisions about programs, course selection, and transfer. Below, we first discuss the intake process and then how students dealt with the information (or lack thereof) provided by the college to support program, course, and transfer decision-making.

The intake process. Our qualitative data suggested that students were confused about the overall intake process, did not find the college's online orientation particularly helpful, and were mixed in their appraisal of the face-to-face intake advising session (known as the "course planning session").

Students were confused about the intake process. The college provided students with a handout ("Seven Easy Steps") outlining the intake process: (1) Apply to the

[1] The college employs professional advisors (who typically focus on course selection issues among students who have already determined a program of study), counselors (who typically deal with more complex issues, including program selection questions), and special services counselors (who deal with special issues such as disability accommodations), all of whom have faculty status. In this paper, we refer to the group in general as "advisors." At this college, instructional faculty (e.g., English or math instructors) do not perform formal advising.

[2] In summarizing the results of student focus groups below, we also include results from an additional set of four focus groups conducted in June 2012 as part of pre-implementation baseline data collection (see p. 27). While results from the 2012 focus groups were not yet available during the exploratory data collection phase in 2011, their results were highly consistent with those of the 2011 groups; thus information from all 12 pre-implementation groups are combined together here for the sake of concision.

college; (2) Apply for financial aid; (3) Have photo taken for ID; (4) Complete placement testing; (5) Complete new student orientation, including both an informational orientation session and a face-to-face course planning session; (6) Register for classes; and (7) Pay tuition and fees. While the handout provided a useful overview, students received little guidance in terms of the most effective or efficient ways to navigate through these steps. For example, students were not provided with an estimate regarding the time required to complete each step; accordingly, some students took an entire day off work to visit the campus and complete the steps, only to find that they could not complete all the steps in one day. Moreover, detailed information on the importance and consequences of developmental placement was not provided to students until Step 5, after students had already completed (and in many cases, failed) the placement exams.

Several of the intake steps could be completed online, but many students were confused about how to use the college's online services. Because career services was the only student service unit that offered a proctored computer lab, students with questions related to web-based orientation, registration, or financial aid were often referred to career services. During peak registration periods, career services staff spent the majority of their time educating students on the online portal, training students in how to search for class sections and choose courses, helping them choose class schedules, showing them how to use the registration waitlist, showing them how to navigate the financial aid site, and helping them create email accounts. As a result, career services staff were distracted from their primary mission of helping students explore and prepare for future careers. As the career services director commented, "Truthfully, we've created a model that works [for students]. The dilemma is, it's not our core business."

Students did not find the online orientation helpful. The college offered an online orientation for first-time-in-any-college students, as well as an on-campus orientation option for students who needed special services (such as disability accommodations or ESL support). Counselors and advisors suspected that many students simply clicked through the online orientation without reading it. One said, "A good decent percentage of students show up at the course planning session having obviously ignored the content." Another said, "When we use lingo from orientation in the course planning session, some of them look at us with blank stares." As a result, advisors felt

they often wasted their limited face-to-face time reviewing material students should already have learned. When we spoke with students about the online orientation, they seemed unimpressed by the content. Representative comments included: "When I started to read through the orientation online, it seemed unimportant. I just blew through it because it was stupid"; "I can't even remember what the orientation included because it seemed so insignificant"; and "There was too much reading."

While advisors felt the policies and procedures covered in orientation were important and valuable, some acknowledged that it attempted to cover too much ground. As one said, "Sometimes it's more than they need, which can be overwhelming if they have no context or framework to put the information into." Another noted, "Orientation can be overly focused on policies and procedures. Some students are so anxious to just register and get into classes, they aren't ready to hear about policies and procedures until later." Advisors thought that if the online content were made more exciting and engaging, students would be more likely to pay attention. Several suggested incorporating videos into orientation. For example, one counselor suggested that ESL students might benefit from an online orientation if it included how-to videos, because students would be able to rewatch the videos as many times as necessary to understand it. Others pointed out that the in-person version of orientation was more helpful for students because the content was dynamic (i.e., students had a chance to ask questions and make the content more applicable to their own situations), and wondered whether the online version could be made similarly dynamic.

Data gathered from students suggested they were disinterested in orientation because it provided little information regarding how to make education-related decisions and plans, and because the content was not targeted to their individual needs. For example, a 2007 orientation survey asked students whether they felt more prepared and knowledgeable after completing the online information session and the course planning session; 37 percent answered "neutral" and 4 percent answered "no." In the comments section of that survey, students expressed a strong interest in learning more about program options, specific degree requirements, and transfer information. For example, one student commented, "The only thing I was told how to do was register for classes. I still know nothing about transferring, programs, degrees, etc."

Students were mixed about the value of the in-person intake session. In general, students valued the opportunity to meet one-on-one with an advisor during the course planning session. Due to the large numbers of students waiting to see an advisor, however, the session was typically only 10–15 minutes long, and was focused primarily on selecting coursework for the student's first semester. Students who had already decided on their program of study tended to be pleased with such a speedy and efficient meeting. For example, one student explained, "I brought all my paperwork, and I told them what I wanted to do, and he told me what I need to do, and that was that. I was enrolled." Similarly, another said, "I just walked in and they said, 'This is what you need to take for where you want to go,' and I was on my way."

In contrast, students who were undecided on their program of study tended to feel rushed and inadequately counseled. As one student complained, "It's like they want to get you in and out as fast as possible. Like they kind of threw some papers at you, and then it's like, 'have a good one'." These students wanted advisors to take more time to understand their individual situation and tailor a set of courses to their needs. As one student recounted:

> They basically printed out a list of classes that I could take, but they didn't say which one would be the best one. They just highlighted every single one and said "pick from these," and I really didn't know which would be the best one to take…. It was more confusing for them to give me those classes than it was to just choose what I think would be right.

Another student concurred:

> They just give you this great big list. And I asked the one lady, "Okay, so does this mean I have to take all these classes?" She's like, "Well, yeah." So I'm sitting here thinking that I have to take 50,000 classes—and [it turns out] I only need to take a few or one or two out of each group.

Information provision to inform academic decision-making. In terms of how students used college-provided information to make academic decisions, our conversations with students and advisors revealed three key findings. First, students and advisors were both uncertain about students' abilities to accurately self-advise. Second,

some of that uncertainty was due to poorly organized, inconsistent, and difficult-to-apply information provided by the college, and some of it was due to students' own lack of decidedness. Third, students valued both face-to-face and online information resources but felt that both needed improvement. Below, we discuss each of these findings in more detail.

Student self-advising. In our conversations with advisors, they seemed wary of student self-advising. Almost all believed that students should check in with them every semester—although it is difficult to imagine how the office could handle such a large volume of visits if more than a small proportion of continuing students did so. A minority of advisors felt strongly that students should come to them with *all* issues and questions and should *never* self-advise. These advisors, for example, intentionally did not tell students about the online degree audit (which allowed decided students to view the remaining course requirements they needed to complete for their program of study). Most advisors, however, felt that some students should be able to solve relatively straightforward issues (such as interpreting program course requirements) on their own, with the assistance of online resources. These advisors felt the online degree audit was a useful tool—at least for decided students—and took time to show these students how to access and use it.

Advisors' hesitation to encourage students to self-advise stemmed in large part from their oft-mentioned concern that online information resources were difficult to find and sometimes inaccurate, as we discuss in more detail below. In addition, advisors felt that many students needed the human connection and encouragement provided by in-person meetings, which further discouraged them from promoting self-advising resources.

In general, students agreed that they wanted face-to-face assistance from advisors.[3] Some preferred face-to-face advising because they were distrustful of their own ability to find, interpret, or apply information accurately. As one said, "I'm not

[3] Across the eight exploratory and four pre-implementation focus groups, students tended to have positive impressions of advising and expressed appreciation for the service, although a few had negative experiences, as discussed in the main text that follows. In only18 instances did a student explicitly compare face-to-face advising and online self-advising, with 78 percent of those explicitly expressing a preference for face-to-face advising and only 22 percent preferring self-advising using online resources.

really good with that kind of stuff. … It's easier to go to a counselor and talk to [them], so you don't mess up." Some felt more confident with an advisor because they believed a "real person" could better understand the student's context and questions, and thus could address their questions more thoroughly and accurately. As one student reflected:

> I would like the counselor option better rather than the Internet. I don't know, I just feel more confident when a real person tells me it. Because on the Internet, they don't know exactly what your needs are. And you might think you're searching for something, and it might be something different that you're looking for, but I don't know. I just think explaining it to a counselor is easier.

In addition, some students preferred face-to-face advising because of poor experiences with online information resources, as we discuss in more detail below. Finally, some students with an intrinsic face-to-face preference had difficulty articulating the reason behind that preference, even when pressed for a follow-up explanation. For example, one student explained, "I guess I'm like old school. I like having the book in front of me and someone in front of me to talk to." Another said, "Me personally, I'd rather talk to someone because—well, I'd rather talk to someone."

While students appreciated the face-to-face assistance of advisors, some also expressed a desire to access more information on their own, and they complained that often the only way to learn *anything* was to visit a counselor or advisor. As one student commented, "I came in on Wednesday and was told to come back Friday for the culinary arts program sheet. I feel that coming back was a waste of time because she gave me a sheet and sent me on my way. I didn't need to meet with a counselor to receive a sheet."

A few students also explicitly preferred to self-advise online. These students tended to fall into two categories: those who were decided on their program of study and preferred the convenience of online information resources, and those who had been "burned" by a face-to-face advising experience. The first group appreciated the fact that they did not need to take time from their busy schedules to visit an advisor face-to-face. For example, one remarked, "Seeing how I am a mom, I can do this at 3 o'clock in the morning, when it might work for my schedule." Another said, "It was very helpful to me because, like I say, when I scheduled my classes, I didn't have to meet with a counselor or anything. I knew exactly what classes I needed." The second group was particularly

frustrated by advisors who had made mistakes which resulted in wasted time or tuition. For example, one aspiring health-professions student who now relied on online self-advising recounted the following story:

> Well, like I said, when the counselor screwed up my schedule and stuff, they literally screwed it up to the point where I'm going to have to skip a whole semester before I can get accepted into my program, and that is the most frustrating thing ever. Because I have all my prerequisites done, but I guess they only accept people in February before spring or whatever, and so I have this whole semester not to do anything from the fall classes to the winter classes or whatever, so that's just—honestly, I don't even know how that happened. Plus, and the two biology classes in one semester, like anatomy and physiology, is horrible. And then microbiology too, and then I also have to take ethics and a humanity class or something. So that's a ton of classes in one semester, and it wouldn't have happened if the counselor would have got it right the first time.

In addition to those who expressed a specific preference for online self-advising or face-to-face sessions, a handful of other students felt that neither online nor face-to-face advising was ideal. These students simply wanted some method—*any* method—that would provide them with accurate, timely, consistent information. As one undecided student remarked:

> I mean, there's tons of programs online, but figuring out what one actually does is kind of daunting sometimes. So you go to the counselor for help, but if they don't know the programs themselves, they can't really be much help to you. So [they might say], "You like computers? Well, try this." I mean, that's not really the best way to go. So I don't know. I guess more information online or better-educated counselors—one of the two.

Our conversations with advisors suggested that when they made mistakes, those misunderstandings were often due to conflicting or inaccurate information provided by programs or transfer schools, which advisors then passed on to students. Thus, both students and advisors suffered from problems with the usefulness of available information resources.

Usefulness of available information resources. CCRC's document review suggested that online student resources tended to be organized according to the college's administrative priorities and structures, rather than in a way that was maximally helpful to students. As one student recalled, "I know I've had some times when I was trying to find all the class schedules and this book right here [the catalog]. I've been trying to find the catalog [online], and I click around to like five different links just trying to find it. And then finally it's just in some random place." Information related to program options, program requirements, course sequences, and transfer pathways was difficult to find, inconsistent across programs, and lacked tools for exploration. Below, we discuss how these problems affected students who had decided on their program of study ("decided students"), those who had not yet decided ("undecided students"), and those who were interested in transferring to a four-year college.

For students who had decided on their program of study, the college provided program plans, which laid out the requirements for each program and were automatically integrated into each student's online degree audit. However, students did not find the program plans particularly helpful, in large part because each program still incorporated a wide variety of options and electives, and these options were difficult for students to understand. For example, the information regarding general education requirements was scattered across multiple portions of the document, requiring students to flip back and forth between multiple sections in order to answer a single question. Program plans also provided no information regarding course sequencing, leaving students to guess which courses they should take when. In our focus groups, several decided students voiced a desire for more clearly laid-out pathways. For example, one student suggested that the college create a default sequence of courses within the program of study:

> I think it's a lot easier if you had something like what you're going into; just put a list, like one way to do it. And then if you want to take another way, then here's on the side, here's the other classes you could take along with this…. I feel like they should put one way to do it, and then if you want another option, if you want to take a different class … then there's like different classes that will go with it. But they should just kind of lay out one way to do it.

Both advisors and decided students were frustrated by the academic faculty's frequent changes to program course requirements—updates which were not necessarily communicated to advisors or updated in the college's online information resources. One advisor complained of the online program information: "It's only as accurate as we [the college] make it, and that's not a priority right now I guess. I feel really disappointed about that. That's the information I rely on too. The accuracy of that information is really my reputation with the student."

For undecided students, trying to decide on a program of study was an opaque and confusing process. Program web pages promised to provide students with "an overview of the area of study, career and transfer options, and faculty as well as links to program and course descriptions and external resources." Yet our document review found that most program pages did *not* include all of this promised information. Many merely provided a link to the program's course descriptions, with no overview or information about career and transfer options; others provided an overview, with no information about specific courses. The website also did not allow any way to explore, sort, or search the college's more than 100 areas of study, which in turn were connected to nearly 200 degree and certificate options.

Our conversations with undecided students suggested that until they chose a program of study, they tended to choose courses without reference to a long-term strategy. One student recounted her thought process in choosing courses: "So I was like, okay, might as well do another math class. Everyone needs a math class. Might as well do another English. I'm going to probably take political science because that seems cool." Another recounted her registration experience in the prior semester:

> I [tried to register] over the phone, and I got hung up on because this class was full, and I just didn't know what I was doing. So I ended up with four classes from two different campuses that were all difficult—I was so confused. [*Laughing.*] It was funny after it was all over; I was like, "What the heck just happened here?"

In general, undecided students were either actively frustrated by or passively resigned to the fact that they could not be sure which courses were appropriate to take, given that they had not yet identified a program of study. As one explained:

> I still don't know what I'm doing. Honestly, I'm taking classes all on my own. I have no idea what basic courses you have to take, your prerequisites. [The advisor] couldn't tell me that, because apparently they are all different for whatever you want to go into. I don't know what I want to go into yet.

Confusion over program and course selection was compounded for students who hoped to transfer to a four-year college. Because Macomb was located in a decentralized state without a common transfer articulation framework, the institution had worked with dozens of four-year colleges to construct over a hundred program-to-program articulation agreements. Unfortunately, destination four-year colleges could (and often did) alter program course requirements without informing the feeder community college. As a result, students were frustrated by frequently changing requirements, which resulted in misinformation from advisors, online resources, and printed materials.

Students with positive comments about the process of transfer were typically headed toward one of two highly popular transfer destinations, which had well-trodden transfer pathways. These students described the transfer process as "straightforward" and "a really cut-and-dried thing." They felt advisors were very helpful in terms of specifying courses that would transfer to the student's intended program at the given college; they also praised the online resources for transfer to these specific colleges.

While advisors were well versed in the most popular transfer destinations, they were not necessarily familiar with other destinations their students were interested in. As one student complained:

> They basically only know [the top two transfer schools] because they have the best relationship with them; but other than that, you're more or less just on your own. And that's where a lot of us go through word-of-mouth or people that we know, because there really is no clarification or reassurance in the website or just in [the community college's] people in general.

Another student recounted:

> [Advisors] have helped me out a lot. But they still confuse me when I go down there sometimes, because they all tell me different things. Like one time, someone told me that [a transfer school] had a dental hygiene program. And then I

> went there a couple weeks ago, and she was like, "I've never actually heard of that," and she tried pulling it up, and it wasn't there. So I don't know—I don't know what happened there. But that was just confusing and just—I don't know.

Similarly, advisors complained that online or print materials were not always accurate, due to unannounced changes in requirements on the part of the destination college. Given constantly changing requirements, students and advisors alike were forced to continuously monitor transfer requirements and transferable coursework. For example, one student explained:

> I always do a double-check now to make sure. Because my math class said it did transfer, and then two weeks after, I found out it must have changed. The engine said otherwise, so I feel like I can't trust what I'm being told. I have to double check with both [the current school] and [the transfer school]. All the time I have to constantly double check.

Another student wondered why the community college and four-year colleges could not work more smoothly together, remarking, "But it would be a lot easier if they came together on stuff and on majors, so it'd make it a lot easier. So I didn't have to go back and forth every time trying to make sure everything was all set. Because that would save me money."

2.2 Recommendations for Intake and Information Redesign

Based on the findings above, CCRC recommended that the college consider redesigning its intake and information provision processes, as discussed in more detail below.

Student intake redesign. CCRC recommended that the college rethink its student intake process and provided three specific examples (all of which were initially suggested by interview respondents) of how that might be achieved at a relatively low cost. First, the orientation information session could be offered earlier in the intake process in order to provide students with key information on financial aid and placement testing before they embarked on those steps. Second, students who needed help with the online portions of intake could have a dedicated service to assist them; for example, the college could

create a proctored computer lab attached to the counseling and advising office. And third, the online orientation for new students could be more dynamic, with content responsive to the information needs of the particular student.

Conversations with advisors and students suggested several more-specific ways in which online orientation could be made more engaging and dynamic. For example, orientation could be designed around how-to video modules demonstrating key tasks, such as activating an online portal account, registering for courses, exploring transfer options, exploring program options, and understanding program requirements. Videos could include voice-overs or closed-captioning for multiple languages, and could be available on the college's website for students to access or review at any time after the completion of orientation. Because the orientation would be dynamic, it could be mandated for all students (rather than only for first-time-in-any-college students), with only the modules relevant to the given student's status required. To ensure that students fully reviewed the relevant information, each required module could include hands-on activities or quizzes. Ideally, students would complete tasks as part of orientation that they would eventually need to complete anyway, such as setting up their online portal account or sketching out a list of potential courses for their first semester to discuss during the subsequent course planning session.

Information provision redesign. CCRC recommended that the college: (1) ensure clarity, consistency, and accuracy in program, course, and transfer information; and (2) ensure that student-facing information was student-focused. First, given that information related to course, program, transfer, and career options was provided by multiple sources (e.g., the information office, orientation, career services, counselors and advisors, the online portal, program web pages, and printed communication materials such as course catalogs), the administration could implement a new process of coordination to ensure information was clear, consistent, and regularly updated across multiple sources. For example, to ensure consistency across programs in terms of information provision, each program might be required to create a program overview, a list of career options, a list of in-state transfer options, a list of key contact faculty and staff, a program description including course requirements and a recommended course sequence, and course descriptions—all according to the same template, which would be

designed to make intuitive sense to students. Each program might be responsible for updating this information on a regular basis, preferably once per term. The information could be stored and updated in a central college database, and the content of this database could populate the online portal and all other relevant web pages (rather than each web page being stored and updated separately).

Second, the college needed to ensure that student-facing information was student-focused. The college was already planning a complete website redesign; CCRC researchers emphasized that the redesign should incorporate student input to ensure that key resources would be easy to locate and understand. In addition, rather than overwhelming students with information and communications that may not be relevant to them, the college could consider sending communications targeted to the needs of specific student groups. For example, through application data, program declaration data, and perhaps survey questions integrated into orientation, the college could keep track of students' status in terms of whether they were dually enrolled, returning to college or attending for the first time, transferring in, decided on a program, interested in or decided on a transfer college, or stopped out of college. On a semestral basis, students could receive resources relevant to their current situation, such as updates to course and program requirements for their transfer school of interest.

Processing the recommendations. CCRC presented its findings and recommendations in several different forums at the college (including a meeting of all counselors and advisors), allowing for discussion, input, and feedback from potentially affected stakeholders. After several months of deliberation and discussion, the college leadership convened two redesign teams: one to focus on intake redesign, and the second to focus on the coordination of information provision. In the next section, we discuss the composition of the teams, the process of redesign and implementation, and the preliminary results of their efforts.

3. Implementation and Preliminary Results

In this section, we first discuss the process of intake redesign, its implementation, and its preliminary results. We then discuss the college's redesign of information provision. We conclude the section with discussion on how the college's leadership supported both the intake and the information provision redesigns in ways that helped to ensure a smooth and successful implementation process.

3.1 Intake Redesign

The kickoff. In December 2011, the college's vice president of student services invited ten individuals to join the intake redesign team: six representatives from counseling and advising; a mid-level administrator who oversaw counseling and advising on one campus; and representatives from student activities, financial aid, and enrollment services. The strong representation from counseling and advising was thought to be important, given that this department had traditionally controlled orientation.

In February 2012, CCRC researchers conducted one-on-one interviews with each member of the redesign team in order to identify potential implementation barriers and provide recommendations to help overcome those barriers. Interviewees shared their perceptions, ideas, hopes, and worries about the upcoming work. All team members were excited to be involved and were looking forward to making a positive difference for students. As CCRC researchers solicited their concerns and thoughts about potential barriers, however, three issues surfaced.

First, while advisors were very positive about the composition of the redesign team, some other team members expressed concern that counseling and advising might be overrepresented. Second, several members of the team had concerns about the newly launched website redesign, which would be proceeding in parallel with their own work. Team members worried that the new website might not support the types of technology they needed to fulfill their vision for orientation, or that they would not be included in website redesign deliberations. Similarly, team members expressed concerns about other information technology barriers, such as the 24-hour waiting period between the time a student applied for admission and the time their online portal account was activated. Third, in the interview each team member articulated his or her vision for intake and

orientation, and these visions did not necessarily align with one another, nor with the key recommendations laid out by CCRC.

CCRC researchers provided feedback on these general impressions to the college's leadership (without "naming names") to help generate strategies to overcome each potential barrier. In response, the intake redesign team's leader implemented activities to support the group through the "forming, storming, and norming" stages of team development (Tuckman, 1965), facilitated open discussions about the team's vision, and worked to create open lines of communication with the website redesign and information technology staff.

Redesign process. The team began the process of intake redesign by tackling the central issue of orientation. They located and reviewed high-quality online orientations from other colleges, identified different subgroups of students who had different orientation needs (e.g., veterans, transfer-in students), and mapped out which orientation topics would be required for each subgroup.

As the team began reconceptualizing orientation, they also rethought and reordered the college's intake steps from "Seven Easy Steps" to three broad phases aligned with the college's new tagline of "Discover. Connect. Advance." In the "Discover" phase, students would complete key tasks (including orientation) online; in the "Connect" phase, they would complete in-person tasks within a single morning or afternoon on campus; and in the "Advance" phase, they would complete their registration and payment online. The new process included more time with an advisor, which would allow students to begin exploring their academic interests and options in more depth. During the winter and early spring of 2012–2013, enrollment services, information center staff, and counseling and advising staff were trained on the new intake process, and the new process went into place in May 2013.

Meanwhile, the redesign team continued to refine the design of the new orientation. To ensure that the team's vision for orientation would be supported by the new website, the college's leadership employed the same technology consulting firm to implement both the website and orientation redesigns. The team worked with the technical consultant to create videos and design interactive activities, such as an activity which helped teach students how to locate and apply information from the colleges'

course catalog (which, as described later, was being redesigned by the information provision redesign team to clarify course requirements and course sequencing). By the summer of 2013, the new videos and much of the new content were ready and online as the fall 2013 incoming students began the orientation process. However, final implementation of interactive activities and other "bells and whistles" were put on hold until the college's larger website redesign process was complete, in order to properly integrate the technical redesign of orientation with the new website's content management system (anticipated in summer 2014).

In time for the summer 2013 orientation rush, the college also created and opened a new student services lab on each campus, where students with special needs could complete the online orientation with hands-on guidance from a staff member. In addition to their role in orientation, the student services labs allowed students to complete other online intake steps (such as financial aid applications) with assistance from a staff member. In its first month, 690 students visited the labs, even though the college had not yet publicized them; during peak registration periods prior to fall 2013 and spring 2014, approximately 2,000 unduplicated students used the labs each month.

Preliminary results. To evaluate the new intake process, the college focused on its most visible component: the online orientation. Incoming students for both fall 2012 (prior to the redesign) and fall 2013 (after the new content and videos were online but prior to implementation of the hands-on activities) participated in a short survey after completing orientation.[4] The survey opened with questions gauging each student's self-advising needs, then included questions about the helpfulness of orientation in terms of several specific topics (e.g., how to log into and use the online portal "WebAdvisor" and how to read and understand the course schedule), and closed with questions regarding the orientation's helpfulness in terms of choosing a program of study, choosing courses for the upcoming semester, and choosing a transfer school. Table 1 shows the improvement in the percentage of students who rated the orientation as "very helpful" (possible responses included "not at all," "somewhat," and "very helpful") from 2012 to 2013.

[4] See the appendix for a copy of the survey form.

Table 1
Percentage of Students Reporting That Orientation Was"Very Helpful" in Terms of Understanding Various Items

Item	2012	2013	Difference
Functions available in WebAdvisor	71%	78%	+7*
How to log into/use WebAdvisor	69%	76%	+8*
How to read/understand course catalog	70%	69%	0
How to read/understand a program plan	68%	69%	+1
How to read/understand schedule of classes	78%	79%	+1
Options for areas of study	70%	70%	0
Options for transfer	57%	66%	+9*
How to choose the right courses	61%	66%	+5*
How to register for classes	68%	70%	+2
How to get more information on areas of study, transfer options, courses to take	66%	71%	+5*
How to get more information on employment/career options	58%	68%	+10*

Note. The composition of students taking orientation changed between 2012 and 2013, as discussed in more detail in the appendix; thus tests of statistical significance (* indicates $p < .001$, based on Wilcoxon tests comparing the distribution of "not at all helpful," "somewhat helpful," and "very helpful" responses between 2012 and 2013, based on a typical item *N* of 5,068) should be viewed cautiously. Differences shown in the third column may be slightly different from the whole-number differences between 2012 and 2013, due to rounding error.

Table 1 excludes the small proportion of students who said they were planning to take only a few courses at Macomb and were not interested in earning a degree or transferring. Among the remaining students, the table shows overall improvement between the fall 2012 and fall 2013 cohorts in their ratings of orientation's helpfulness in understanding how to use WebAdvisor, understanding options for transfer, understanding how to choose the right courses, and understanding how to get more information on employment or career options. However, for two items (understanding options for areas of study and options for transfer), the college was less interested in the overall change across cohorts and more interested in changes within particular subsets of the population. Tables 2 and 3 break down the results for these items and subpopulations.

In terms of how helpful orientation was in understanding options for area of study, the college was most concerned about students who were trying to narrow down

their options or who were completely undecided on a program. Unfortunately, as Table 2 shows, these subsets of the population did not substantially improve their opinion of orientation's helpfulness for this item.

Table 2
Percentage of Students Reporting That Orientation Was "Very Helpful" in Understanding How to Choose a Specific Area of Study, by Program Decidedness

Chosen specific area of study? (Program Decidedness)	2012	2013	Difference
Yes	75%	75%	0
Trying to narrow options down	67%	69%	+2
No idea yet	60%	61%	+1

Note. No changes were statistically significant, based on Wilcoxon tests comparing the distribution of "not at all helpful," "somewhat helpful," and "very helpful" responses between 2012 and 2013, based on N = 2,250 for decided students, N = 1,792 for those narrowing down options, and N = 920 for entirely undecided students.

In terms of how helpful orientation was in understanding options for transfer, the college was most concerned about the group of students who were not yet sure whether they wanted to transfer or who knew they wanted to transfer but were not yet sure of their transfer destination. As Table 3 shows, most of the change in overall transfer helpfulness observed in Table 1 was driven by this target group of students, who improved their perception of orientation's helpfulness on transfer options by an impressive 16 percentage points.

Table 3
Change in Percentage of Students Reporting That Orientation Was "Very Helpful" in Understanding Options for Transfer, by Transfer Decidedness

Interested in transfer? (Transfer Decidedness)	2012	2013	Difference
Yes, and have specific school in mind	64%	67%	+3
Not sure want to, or not sure which school	49%	66%	+16*
Not interested in transfer	57%	64%	+7

Note. *indicates $p < .001$, based on Wilcoxon tests comparing the distribution of "not at all helpful," "somewhat helpful," and "very helpful" responses between 2012 and 2013, based on N = 2,119 for those interested in transfer, N = 2,284 for those who were not sure about transfer, and N = 651 for those uninterested in transfer.

Overall, Tables 1 through 3 suggest that the college can and should continue to improve orientation in several areas. As the college continues to incorporate more hands-on and dynamic content into orientation in parallel with the rollout of the new website, it aims to achieve a stronger proportion of "very helpful" responses. For example, 80 percent of students who are undecided on a program should rate orientation as "very helpful" in terms of "options for areas of study," with the remainder rating it at least "somewhat helpful." In addition to soliciting feedback on the already-planned improvements for summer 2014, the college will continue to use the orientation survey in subsequent years to monitor the impact of design tweaks on an ongoing basis.

3.2 Information Provision Redesign

The kickoff. In December 2011, the vice president of student services convened a cross-functional, nine-member information provision redesign team, including two academic deans; a faculty member who served on the college's curriculum committee (which is similar to an academic senate); and representatives from career advising, academic advising, recruitment and enrollment, the communications office, and the provost's office.

This redesign team was charged with conducting a college-wide audit of communications regarding program, transfer, and career information; developing "master" information resources to provide clear, accurate, and consistent information on key topics; soliciting and incorporating input from students on these communications; and working closely with the website redesign team to ensure consistency. In February 2012, CCRC researchers conducted one-on-one interviews with each team member. Similar to the intake redesign team, information provision team members were looking forward to making a positive difference; however, two potential issues of concern surfaced across interviews.

First, the team quickly focused on revising the academic catalog, because it represented the most appropriate "master" source of information, and would need to be revised quickly in order to receive approval from the faculty curriculum committee and go into effect for fall 2013. Yet several redesign team members were unclear whether their catalog revisions would be confined to formatting only, or whether they were also

authorized to make content changes to the catalog. These members were concerned that the addition of course sequence, career, or transfer information would require multiple approvals from various campus constituencies, which might not be forthcoming.

Second, some members were unclear of their role in terms of the website redesign. For example, two team members mentioned specific concerns about website navigability and usability but were not certain whether it was part of their charge to push for change in that regard. One member of the team who also sat on the website redesign committee noted that the website committee was primarily focusing on the "look and feel" of the website; accordingly, it was unclear whether any specific group of people were charged with recommending changes to the website's navigation and interfaces which would make program, transfer, career, and course information easier to find, understand, and apply. With these concerns in mind, the team's chair worked to create stronger communication links between the information provision redesign team and other important stakeholders: the curriculum committee, the website redesign committee, and the college's information technology staff.

Redesign process. During the spring and summer of 2012, the information provision redesign team conducted an information audit by requesting each academic program and administrative department to provide copies of all relevant information (including information on courses, programs, careers, and transfer options) currently shared with students, either online or on paper. The team then began to draft policies to ensure such information would be clear, consistent, and regularly updated across multiple sources. To ensure that course and program updates were communicated to central administration as well as to the counseling and advising staff, the team created a New Course/Program Information Update form. To ensure that information sent directly to students by departments and individual faculty was consistent with centrally maintained resources, the team created a Faculty Marketing Checklist. Both documents and their related policies were approved by the curriculum committee in September 2012.

To tackle the larger issue of consistent program information, the team also began to create a "master template" for programs of study. Using the new template, each program would be required to provide consistent information, including types of credentials offered, the purpose of each, and the credit hours required for each; key

faculty contact information; career opportunities; transfer options; required courses; and suggested course sequencing. The template also included a redesigned layout to make the information elements easier to find, read, and understand. Initially, redesign team members hoped to provide detailed information on both career opportunities and transfer pathways for all programs. In particular, they wanted the career opportunities section of each program sheet to include data on Michigan's percentage of employment growth, as well as the wage range, for related occupations. However, because this state-level information was not necessarily aligned to particular programs, and was updated on a schedule that did not match the catalog update schedule, team members compromised, deciding to provide a list of occupations related to the program, along with links to state-level information. In terms of transfer, similar concerns led the team to a compromise: including a general statement about the importance of deciding on a transfer destination early and providing a link to a college-wide Transfer Resource Guide.

The new program template was approved by the faculty curriculum committee in December 2012. The process of approval was smooth, largely because the team had already reached out to affected programs to help them expand or revise their program information to match the template. Moreover, the template was presented and supported by a curriculum committee faculty member who also served on the redesign team. The curriculum committee's approval helped ensure that academic programs would keep the template content updated for their own programs in the future. In addition, all program and course information provided by various areas of the college (e.g., counseling and advising, individual programs, career services, and enrollment services, and any relevant areas of the website) were now required to match the template's content and style.

In January 2013, team members met with the manager of curriculum, the manager of information systems, and a program analyst to develop the process and procedure for implementing the new template for both the online and printed versions of the 2013–2014 catalog, which would be published in June 2013. Meanwhile, the team worked with individual academic programs to help them develop or revise any information elements necessary for inclusion in the new template, and also solicited more detailed feedback on the planned template from students and advising staff.

To solicit feedback from students, participants from previous focus groups were emailed with a request ("You Spoke, We Listened, Now What Do You Think?") to review the new program template. Twenty student respondents viewed a mock-up of the new business management program sheet and answered questions about ease of use (e.g., "How easy was it to find information about the kinds of career opportunities available in business management?") as well as questions designed to gauge their understanding of the information (e.g., "How many accounting courses are required for this degree?"). Students also viewed the old and new program sheets side-by-side, indicated which was easier to understand, and provided comments as to why. Overall, students were very positive about the new design: For each "ease of use" item, 80–100 percent of respondents rated the item as either "easy" or "very easy" to find, and 94 percent believed the new layout was easier to understand. The vast majority correctly answered questions about the number of courses required and appropriate course sequences for the program, but only 56 percent correctly answered a question about course corequisites.

To solicit additional feedback (and to help inform and build support among advisors for the new template), 23 counselors, advisors, and other staff members also reviewed the new catalog design and answered questions parallel to those asked of students. Eight-one percent felt the new layout was easier to understand, and the vast majority correctly answered questions about the number of courses required and course sequences for the program, but only 67 percent correctly answered the question regarding corequisites. Based on both students' and staff members' relatively poor performance on the corequisite question, the redesign team determined that the layout of the corequisite information should be reviewed for improvement and implementation during the subsequent academic year.

By June 2013, the team's work was largely completed, with the exception of ongoing review and improvement, which would take place in 2013–2014 and beyond. The new policies were in place, the program template and updated information were ready to be incorporated into the new website upon its launch, and the newly redesigned catalog was released.

Preliminary results. To evaluate changes in the usefulness of information provision, CCRC researchers conducted two sets of four focus groups—one before and

one after changes made by the information provision redesign team. Baseline or pre-redesign data collection took place in June 2012, in the context of four activity-based focus groups with students who had just completed their first or second semester at Macomb. For these groups, CCRC researchers designed a set of 12 self-advising scenarios in conjunction with the college's advising office. Each scenario asked participants to put themselves in the place of a student who was attempting to make a concrete set of academic decisions, with some scenarios focusing on choosing a program of study and others focusing on choosing a transfer college or understanding course requirements.

Student performance on the scenarios was expected to reflect two attributes: the quality of the information provided, and each student's individual ability to find, interpret, and accurately apply the relevant information. Student responses to each scenario were graded on a scale of 100 percent, using a rubric developed with the college's academic advising staff. After each student completed his or her (randomly assigned) scenario, the group of students discussed the strategies that they used to solve their own scenario, as well as their general experiences at the college in terms of choosing a program of study, choosing a transfer college, and choosing courses.

In the June 2012 groups, individual student accuracy scores ranged from 24 percent to 92 percent, reflecting variation both across scenarios (some seemed easier to solve than others) and within scenarios (even when completing the same scenario, individual respondent scores varied substantially). For example, among the four students responding to a scenario that focused on choosing a transfer college for mechanical engineering, two students earned fairly high scores (92 percent and 85 percent) while two earned fairly low scores (52 percent and 44 percent), suggesting that individual students varied in their ability to effectively use the same available resources.

Some students were generally confused about where to start and how to approach the scenarios. For example, one said, "I just didn't really know where to go; that's my problem really, right there. I tried my best using the search browser, trying to type in 'transfer to different college' or just typing in 'transfer' and seeing what will come up."

Other students found the exercise confusing or challenging due to limited information or to a lack of clarity in the provided information. As one student explained:

> … I had the mechanical engineering one. I had to find the school that it transferred to best, based on what I took already…. I used the "my program" link or something, and it showed me what I had to take and all that. But with that, I had a few issues; it was kind of confusing. Because it said stuff about to have an associate's degree you can apply for an associate's degree, but it didn't state that you needed one or it was just optional. It didn't specify for that. It didn't show the maximum number of credits that transferred, that you could transfer.

A year later, just as the new catalog was released, we conducted an additional four focus groups using the same activities. Similar to the first round of students, the new round of students had just completed their first or second semester at Macomb, and thus had also experienced the *pre-redesign* orientation and intake process. Accordingly, this exercise isolated the impact of the redesigned college catalog and use of the corresponding online program template. Table 4 shows the difference in student performance between the 2012 and 2013 focus groups in terms of three key clusters of items: understanding course selection, understanding programs of study, and understanding transfer requirements.[5]

Table 4
Changes in Student Performance on Self-Advising Tasks, 2012–2013

Task Type	Proportion of Items Correct		
	2012 Mean (SD)	2013 Mean (SD)	Mean Difference
Course selection	0.40 (0.42)	0.63 (0.44)	+0.23
Program of study	0.76 (0.38)	0.86 (0.32)	+0.10
Transfer	0.50 (0.44)	0.50 (0.45)	0.00

Note. No differences were statistically significant using a Wilcoxon test, due to large standard deviations and small sample sizes.

Students substantially improved their performance in terms of choosing appropriate courses (from 40 percent to 63 percent correct) and programs (from 76

[5] For more information on how cluster scores were calculated and on the breakdown of *N*s from pre- to post-implementation for each cluster of items, see the appendix.

percent to 86 percent correct). However, as noted above, the new program template provided little in the way of new information on transfer pathways. As might be expected, then, student scores in this area did not improve.

Despite the strong improvements in course selection performance from 2012 to 2013, the average student still performed more poorly than the college desired. Moreover, as the large standard deviations show, students varied widely in their performance: At both time points, some students performed very poorly while others performed well. These results suggest that while the new program template seemed to improve students' abilities to find and apply advising-related information, the college still needed to further improve information quality (particularly in terms of transfer) and to devise ways to help build individual student skills in interpreting the resulting information.

Based on these initial results, as well as feedback from the spring 2013 surveys, the information provision redesign team is revising the program template to further clarify corequisite information, which should boost students' "selecting courses" scores. The college is also working to address the underlying issues that made it difficult to provide students with useful, timely, consistent information regarding transfer pathways. Currently, information related to transfer programs, pathways, and guides is handled by three separate offices. The college is investigating how to centralize transfer information processes and make them more efficient; in particular, the college is working to create a more interactive transfer database that would be housed under the dean of university relations, and it has hired a part-time employee to populate the database.

3.3 Supporting a Smooth Implementation

After the bulk of the changes to intake and information provision were implemented in June of 2013, CCRC researchers conducted a second round of one-on-one interviews with members of the redesign teams in order to understand how each team worked through barriers and challenges, and to help team members reflect on advice they would provide to other colleges attempting similar reforms.

Overall, redesign team members were proud of their team's work, and enthusiastic about the prospect of future improvement—not only in terms of intake and advising, but also in other areas that could influence student success. These attitudes

stand in stark contrast to the "initiative fatigue" we have observed on many other campuses. In questioning team members about why they thought the work had gone so well, we identified three themes, which all revolved around the redesign's leadership practices: invoking shared values, cultivating trust, and creating supportive structures.

Invoking shared values. In their book on collaboration in the university setting, Kezar and Lester (2009) argue that successful collaborative efforts occur not because administrators *change* hearts and minds, but rather because they clarify and emphasize how those efforts will promote individuals' *pre-existing* values. Macomb's leadership seemed to instinctively understand this notion, and the pre-existing value they consistently emphasized was that of *student-centeredness:* Rather than designing processes around the administration's needs and desires, the college's leadership emphasized the importance of listening to student voices and of designing processes that respond to student needs in order to support student success. The redesign teams' leaders encouraged team members to create a vision based on the value of student-centeredness—to "think outside the box," stop focusing on "what can't be done," and envision the best process or product to meet students' needs. When group members disagreed, they were able to come back to the touchstone question, "What do the students say?" The value of student-centeredness also helped team members to let go of preconceived notions or territorial feelings, to be open to listening to others, and to collaborate. As individual team members began to realize that colleagues shared their values and had valuable and unique information about students' needs and perspectives, they became more willing to listen to and integrate that information—even when some points were initially difficult to acknowledge—for the sake of a better overall solution.

Cultivating trust. Kezar and Lester (2009) also point out that the most successful collaborations are supported by an administration that "leads by listening." In the current project, team members emphasized that the college's leadership followed this principle. For example, prior to the onset of the project, the leadership recognized that it would be important to listen to and incorporate the perspectives of the relevant collective bargaining units (with the exception of a handful of senior administrators, all of the college's faculty and staff are affiliated with a bargaining unit). Indeed, the college's counselors and advisors had a strong and active voice within their union; moreover, any

changes to the college's intake and advising processes would impact advisors' jobs and could be interpreted to infringe on their union contracts.

To solicit the input of counselors and advisors, CCRC researchers launched the exploratory research process by interviewing full-time counselors and advisors individually, discussing their perspectives on student needs, their jobs, and what they wished were different or better about the college's intake and advising processes. This process of inviting reflection helped advisors to proactively "own" the issues and begin to think through how to better serve students.[6] CCRC then conducted student focus groups to collect student input, channeled this information back to the advisors, and discussed potential reasons for differences between advisor and student perspectives, which helped advisors to think more critically about their own preexisting views. As the process of the redesign took shape, the administration intentionally constructed the redesign teams to heavily represent key advising staff, such that advisors helped devise and implement solutions rather than being unilaterally forced to accept someone else's solutions.

In general, the redesign team leaders pursued a leading-by-listening approach both inside and outside of team meetings. Rather than attempting to take control, they served as *facilitators* of the group's discussion and of the larger process of change. This approach helped team members trust that they were truly responsible for creating the new process. To help cultivate trust among the larger college community, the redesign team leadership and members of the redesign teams also practiced transparency—for example, they made frequent presentations about the ongoing process at administrative, faculty, senior academic staff, and advisor meetings.

Creating supportive structures. To harness multiple sources of creativity and information, the administration created redesign teams that included members from disparate areas of the college: advisors, frontline student services staff, academic deans, and an instructional faculty member. To avoid letting team members waste time in interesting but ultimately unhelpful conversations, team leaders also carefully structured each meeting and set ambitious but realistic deadlines. While team members joked that

[6] When faculty and staff have never previously reflected upon their practice, an in-depth interview can serve as an excellent tool to invoke critical reflection for the first time; see Waskow (2006, p. 99).

their timelines were impossible, they nevertheless met them. When asked why, most team members cited the timing and the structure of their meetings and tasks.

For example, the student intake redesign team met every two weeks over a working hour-and-a-half lunch. The dean of student success acted as the team's chair, keeping the discussions moving forward and bringing the focus back to the needs of the student when the conversation drifted. Each meeting had a clear agenda and ended with a set of action items, each of which identified a team member who was responsible for making progress on the action before the next meeting. In addition, the manager of counseling and advising (who served as the team's project manager) helped keep everyone on track between meetings.

Team members also felt it was relatively easy to stay on track because their work was supported by the administration; thus, when they ran into barriers (e.g., with information technology challenges), these were cleared away. The administration's support was reinforced with grant funds. The college received a total of $378,000 over four years from The Kresge Foundation, which it used to cover consulting fees for technology improvements, costs associated with student focus groups (including student incentives to participate), faculty and staff time (including senior leadership, administrative, redesign team, information technology, and institutional research time), and travel costs to disseminate findings at state and national conferences.

4. Discussion and Conclusion

Community college students face a complex landscape of decisions and options, with few resources upon which to rely. In order to help students navigate these complexities, colleges might first consider hiring more advising staff. More intense and more long-term advising may indeed improve students' academic outcomes (Bettinger & Baker, 2014; Scrivener & Weiss, 2009; Visher, Butcher, & Cerna, 2010). Yet hiring more advisors may be prohibitively costly for resource-constrained institutions. In this study, we worked with a large comprehensive community college to identify and implement a set of low-cost strategies to help students navigate college more successfully. By listening to and incorporating students' perspectives, the college redesigned its intake,

orientation, and information provision processes in ways that reduced student confusion, and it did so using a relatively small amount of money.

Across the three-year course of this project, CCRC and other research organizations focused increasingly on the complexity of student pathways, and they began to generate possible solutions for pathway simplification. Drawing from the current case study as well as other ongoing research in the field (e.g, see Booth et al., 2013; Jenkins & Cho, 2014; Kadlec & Gupta, 2014; Kadlec, Immerwahr, & Gupta, 2013; Karp & Fletcher, 2014; Rodicio, Mayer, & Jenkins, in press), we suggest several additional possibilities for relatively low-cost improvements: 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.

4.1 Simplifying Program and Transfer Structures

Students would not need quite so much advising if their choices were not so complex. For example, some community colleges offer career-technical programs that are highly structured, including a very specific sequence of courses to be taken in lockstep with a peer cohort (e.g., see Van Noy, Weiss, Jenkins, Barnett, & Wachen, 2012). After making the decision to enter a highly structured programs, students have no need for further advising in terms of course selection; all students take the same courses together throughout the remainder of the program.

Transfer-oriented programs in community colleges, however, may have difficulty simplifying their structures—by, for example, recommending a default sequence of courses for any psychology major—due to the conflicting requirements of four-year transfer destinations. In most states, public four-year colleges and universities set their own rules regarding which courses they will accept from which colleges; moreover, individual programs within each university determine which courses will be accepted toward the requirements for program graduation (Reed, 2013). Some states have moved to simplify the transfer process through articulation frameworks for general education (Wellman, 2002). For example, a state may mandate that specific courses or types of credits from any public two-year college will be accepted toward general education requirements at any public four-year college. Even under these frameworks, however, the

earned credits do not necessarily count toward the general education requirements *of a specific major.* Thus, a student may complete two years of general education credits and transfer to a four-year college, only to find that he or she must retake half of those credits in specific signature courses that fulfill the general education requirements of his or her chosen major. In order to simplify transfer-oriented programs of study, then, community colleges may need to work together to advocate for stronger statewide articulation frameworks, and they may need to collaborate with the state's four-year colleges to design a framework that meets both sectors' needs.

4.2 Teaching Students How to Self-Advise

Some students are more adept at self-advising than others. In our self-advising scenarios, a handful of students earned nearly perfect scores, despite the potentially confusing material they encountered. In contrast, other students attempting the same scenarios with the same available resources were unable to find and apply the appropriate information. Self-advising is a skill—and, similar to any other skill, it could be taught by the college. According to the professional association for advisors, effective advising is a form of teaching (see, e.g., Campbell & Nutt, 2008; Hagen & Jordan, 2008). Advisors should not merely provide students with information, but rather consider how to help students build the skills needed to reach a defined set of learning outcomes (e.g., one learning outcome might be "[using] complex information from various sources to set goals, reach decisions, and achieve those goals" [National Academic Advising Association, 2006]).

Some theorists conceive of the advising process as a problem-solving exercise which draws on (and develops) a variety of information-processing and metacognitive skills. For example, optimal decision-making may require students to reflect on how they typically make decisions and how they may need to amend their approach, identify emotions that may be blocking effective decision-making and learn how to defuse them, process large amounts of information into a smaller subset of relevant information, evaluate various costs and benefits, and prioritize alternatives (Peterson, Sampson, & Reardon, 1991; Reardon, Lenz, Sampson, & Peterson, 2011). Consistent with this view, if advisors can help students master career-related problem-solving steps, including the

larger emotional and cognitive management required to successfully execute each step, students will be able to solve career-related issues throughout their lives—an important goal, given that the typical worker switches employers every four years (U.S. Bureau of Labor Statistics, 2012).

How can colleges teach students these self-advising skills without substantially increasing advising staff? Institutions might consider mandating an orientation for incoming students —as our case-study college did—which would expose new students to available online tools and provide practice in using them. Beyond that initial exposure, however, students will need ongoing practice in identifying their interests and potential goals, sifting through and understand information, weighing options, setting long-term goals, and planning out steps to reach those goals. This type of practice could be built into a first-semester student success course (e.g., see Karp et al., 2012), which could be strongly recommended for all undecided students. More broadly, however, 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. Different disciplines might label these skills as components of "critical thinking," "information literacy," or "self-directed learning," and many colleges are beginning to experiment with infusing such skills throughout their general education curriculum.

In addition, as we discuss below, colleges may want to consider strategies that accommodate basic advising tasks as part of an automated system, thus freeing up advisors to spend more time working with the individual students who have the greatest needs in terms of learning self-advising skills.

4.3 Renovating Online Systems

In this case study, the college undertook the very important step of making online advising-related information easier to find, more consistent, and easier to understand. In addition, colleges may wish to consider employing technology for student tracking and triaging, while maintaining the option of face-to-face assistance for the students who need it most.

Tracking. At many community colleges, an individual student's academic progress is not monitored, outside of the very broad "satisfactory academic progress"

requirements of federal financial aid. In particular, a college may not have a clear sense of which major a given student is interested in pursuing or is already pursuing; as a result, the college cannot identify which students are struggling in key courses within their major, or which are enrolling in courses inappropriate for their major. Without such tracking capabilities, a college cannot intervene to support struggling or confused students with timely advising. A variety of third-party software vendors are now offering tools integrated with college student information systems, which allow both students and advisors to track students' progress through a program of study. Some of these software tools also incorporate early-warning systems, which draw on faculty reports as well as student course-taking behaviors and course performance to notify advisors when particular students seem to be veering off track. These tools are too new to have yielded any rigorous evidence of their effectiveness. Although anecdotal college reports have been positive (e.g., Blakemore, 2012; Denley, 2012; Laughlin, 2012), CCRC's ongoing research suggests that such tools are unlikely to be helpful unless the college pairs them with a careful process of advising redesign that includes a reconsideration of the cultural roles of advisors and instructional faculty vis-à-vis students (Karp & Fletcher, 2014).

Triaging. The exploratory focus group data reported in this paper suggest that some students need more intensive advising than others. In particular, undecided students may need more holistic and developmental advising, while decided students may simply need accurate and timely information regarding their chosen program and transfer school's requirements. Building on this insight, colleges could conceivably gather information on incoming students to calculate their probability of needing intensive advising. For example, as part of the standard placement testing process, colleges could distribute intake forms that ask students to indicate their top two or three interests in terms of a program of study (and transfer college, if applicable), and they could include additional questions to probe how decided or undecided students are on these options. The form could even include questions assessing metacognitive skills. For students with strong metacognitive skills who are firmly decided on a specific type of program stream, intake advising might be handled strictly online, which would allow advisors to spend more time with undecided students, who might be required to attend an hour-long, in-depth face-to-face advising session.

Integrating personal touch points. In this study's exploratory focus groups, students who preferred face-to-face advising cited a number of reasons for that preference, including a distrust of online materials and a distrust of their own abilities to self-advise. Some also had a generalized preference for dealing with a "real person" for reasons they could not always articulate. As one student said, "Me personally, I'd rather talk to someone because—well, I'd rather talk to someone."

The larger literature on community college students suggests that many of them (particularly those who are first-generation college students or from ethnic minority communities) benefit from personal connections with faculty or staff, who can help bolster their sense of belonging and academic confidence (e.g., Bensimon & Dowd, 2009; Cox, 2009; Stanton-Salazar, 2001). Thus, even if students do not consciously recognize it, personal connections with advisors and other institutional agents may be important to their academic persistence and success.

Accordingly, colleges need to consider how and when to integrate personal touch points into online advising systems. For example, every screen within an e-advising system could include a link to chat with an advisor (similar to the "chat with a librarian" links on many college library websites). For more in-depth conversations, students could also click a link to make an appointment with an advisor. Finally, electronic tracking and early-warning systems can flag students who may need personalized assistance, allowing advisors to reach out and make a personal connection with these students before they potentially go entirely off track. Integrating such touch points could help ensure that students who need personal help can access such assistance quickly and easily.

4.4 Conclusion

Across the first year of college, the most important role of intake and support services may be to help students get firmly established in a program of study and to provide students with the information and support they need to successfully complete their program (Jenkins & Cho, 2014). In the course of this process, colleges must help students develop their goals, understand what they must do to achieve those goals, track their progress toward those goals, and provide help when students get off track. Rather than expecting advisors to manage the full burden of these responsibilities for every

student, institutions may wish to create a triaged system that allows advisors to focus on the most challenging and complex problems—those that require their unique skills and training—while managing more general and typical problems through mandatory student orientation activities, required student success courses, a clearer and more structured curriculum, and improved online information provision and guidance systems. By listening to the voices of students and advisors, and by incorporating their perspectives into a redesigned intake and support system, colleges may be able to improve the success of their students in a highly cost-effective way.

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Appendix: Methodological Details

A.1 Exploratory Data Collection and Analysis

To identify the complexities faced by students, we used four key methods during the spring and summer of 2011: document review, faculty and staff interviews, student focus groups, and quantitative analysis.

Document review. With the assistance of a special projects manager attached to the college president's office, we identified and examined dozens of documents related to the student experience at Macomb. Key documents included results (and qualitative student comments) from service improvement questionnaires for counseling and advising for fall 2010 and winter 2011, results of previous student satisfaction surveys and focus groups, reports on activities in student services offices, new student orientation materials, course catalogs and schedules, college policies and procedures, meeting minutes from the student services improvement team, and student-facing online information resources. One key online information resource was the student online portal WebAdvisor, through which students could access degree audits and other functions powered by the college's Ellucian-based enterprise system. Together, these documents helped provide a sense of the administration and staff's current understanding of the student experience, as well as ongoing plans to improve it.

Exploratory faculty and staff interviews. In order to understand the student experience from the perspective of those who interact with students on a regular basis, we conducted exploratory interviews with faculty and staff. We conducted a group interview with key career services staff in March 2011 to understand the services they provide to students and their perspective on the frustrations and challenges that new students face. We conducted one-one-one interviews with all 22 full-time counseling and advising faculty at Macomb in May 2011. Each interview lasted between 1–1.5 hours. Topics of discussion included thoughts about orientation; areas of student confusion in the enrollment process; students' decision-making processes, and typical methods that counselors and advisors use to support students through these processes; reactions to student-facing information provided through WebAdvisor; and the types of issues that students may be able to self-advise on, if they were provided with the appropriate

information. We also met with the director and assistant director of admissions, the director of information technology, the vice president of student services, the director of financial aid, and supervisors of the front-desk staff in the counseling and advising offices. During each meeting, interviewers (including two professional researchers and the college's special projects manager) took detailed notes, including verbatim remarks whenever possible. To extract themes from the interviews, the team of interviewers met, reviewed and discussed their notes, and identified emergent themes (for example, concerns about students' abilities to self-advise). The team then highlighted each set of notes to flag these themes, and extracted representative perspectives, suggestions, and quotations to illustrate each theme (for example, several advisors expressed the opinion that students found it difficult to self-advise using the online degree audit because it is poorly organized and requires cross-referencing with other documents).

Exploratory student focus groups. CCRC designed the initial set of eight exploratory student focus groups (held in June 2011) to be responsive to the themes surfaced in the faculty and staff interviews. In general, the college's academic advisors believed that students' advising needs differed according to three types of characteristics: age, level of college experience, and program decidedness. They felt older students tended to be more goal-oriented and to need less assistance than younger students; that first-semester students tended to need more assistance than continuing students; and that students who had decided on a program of study had very different needs than undecided students. Thus, we designed the focus groups to be relatively homogenous with respect to student age, length of time at the college, and decidedness. We defined older students as those who entered college at age 20 or older.[7] We defined new students as those who first enrolled in the spring of 2011 and continuing students as those who began during the fall of 2010 and reenrolled in the spring of 2011. We defined decided students as those who had chosen an area of study.

When combined together, the three two-level factors (2 x 2 x 2) result in eight possible combinations; thus, each of the eight groups focused on one of these combinations. For example, one group was comprised of younger, decided, first-semester

[7] Approximately half of the college's student population entered college at 20 or older, while the remaining half were 19 or younger at entry. Students 17 or younger were excluded from the study.

students, and another group was comprised of older, decided, first-semester students. While the *N* within any given cell of this 2 x 2 x 2 factorial design would be relatively small (e.g., *N* = 10 older, decided, first-semester students), the design would allow us to gather responses across four different focus groups for each given category (e.g., *N* = 40 across four groups of older students). We could thus examine whether age, first-semester status, or decided status seemed to be consistently related to students' comments and preferences. As each particular group was homogenous in its makeup, we could also associate the transcribed text of the conversation with the particular characteristics of that group.

A random selection of students who matched the criteria for participation (i.e., first- or second-semester students 18 or older) received a letter inviting them to call the college if they were interested in participating. The letter specified that the student would receive $75 to reimburse them for about two hours of their time. Students who called were screened with three questions regarding their age, semester of entry, and whether they had decided on a program of study, to identify their eligibility for a specific group. The first 12 students who were eligible and available for their particular group were scheduled to participate (we anticipated that two or three students would not show up on time for their group, which would leave approximately 10 participants for each group).

When students arrived, they first participated in an informed consent process and then entered the focus group room. After introducing the purpose of the study, the facilitator asked students to discuss their experiences navigating the college upon entry; their ongoing experiences with the college once enrolled in classes, such as counseling and advising; their usage and perceptions of online information resources, including WebAdvisor; and their experiences deciding on a program of study, deciding on a transfer school (if applicable), and deciding on specific courses to take. Focus group discussions lasted about two hours per group; each participating student was paid $75 to reimburse them for their time.

In partnership with Datatel (now Ellucian), we also conducted an additional set of four focus groups in August 2011 to gather more detailed student feedback on WebAdvisor (results of these focus groups are not included in the current report).

The first eight exploratory focus groups were audio-recorded and transcribed. Each transcription was broken into analytic units, or comments, based on a discrete thought voiced by a given student. For example, if a particular student held the room's attention for several minutes, that student might voice only one thought in that time or might voice two or three discrete thoughts. In the latter case, each thought would be treated as a separate comment. As another example, students frequently responded to the facilitator's questions with a few words. For example, one student might respond, "I really like the online system," and another might add, "Yeah, it's cool." Each of these would also be treated as a separate comment.

Using Atlas.ti qualitative coding software, each comment was coded according to three major types of codes: logistical stages, types of support, and preferences and tone. *Logistical stage* codes represented the many steps a student must navigate as part of the college experience, including topics such as application, enrollment, orientation, placement testing, choosing a program of study, course selection, and transfer. *Types of support* codes included the many resources a student might utilize to navigate each logistical stage, such as counseling and advising services, instructional faculty, other students, the college website, the online degree audit system, or resources unaffiliated with the college (e.g., parents, friends, other schools' websites). *Preference and tone* codes flagged units that expressed positive attitudes, negative attitudes, a feeling of challenge or confusion, a feeling of success, an explicit preference for an online resource (in contrast with a face-to-face one), or an explicit preference for a face-to-face resource (in contrast with an online one). Any given unit could be triple-coded; for example, if a student spoke glowingly about an advisor's support in helping choose courses for the upcoming semester, the thought unit would be coded as choosing courses (*logistical stage*), counseling and advising (*type of support*), and positive (*preference and tone*). Units were then cross-classified with the student's characteristics (age, semester of entry, and decidedness) to identify similarities or differences between the two levels of each factor.

Quantitative data analysis. In addition, we conducted quantitative data analysis using student demographic information, transcript data, and placement test scores for students who enrolled at the college for the first time between the fall of 2004 and the fall

of 2010, with each student tracked through the spring of 2011. We used these data to examine larger scale patterns of student behaviors and outcomes, including characteristics of students who register online and characteristics and outcomes of students who register late. These data were helpful in answering specific questions from college administrators (for example, whether the college should consider eliminating the option for late registration), and they will ultimately be helpful as a baseline as the college conducts longer term follow-up analyses of changes in student outcomes. Given that the analyses did not strongly inform the two redesign processes discussed in this report, however, they are not reported in detail here.

A.2 Pre- Versus Post-Implementation Data Collection

To capture changes in the student experience from pre- to post-redesign, we used two key methods: a survey of students who completed the college's online orientation, and focus groups in which students completed a self-advising activity using the college's online information resources. We also interviewed members of each redesign team both pre- and post-redesign.

Orientation survey. Students planning to enroll in both fall 2012 and fall 2013 filled out a one-page online survey after completing orientation. The survey opened with questions gauging the student's self-advising needs and then asked questions about the helpfulness of orientation in terms of several specific topics. See Box A.1 for a copy of the questionnaire.

Box A.1
Orientation Survey Questionnaire

First, please give us some information about your educational goals.

Have you chosen a specific area of study yet?
No—I have no idea yet which area(s) I want to study.
Maybe—I have two or three areas I'm particularly interested in, and I'm trying to narrow down my choice.
Yes—I plan to study in the area of: _____
Not applicable—I'm only taking a few courses here and don't plan to focus on a particular academic area of study.

Are you interested in eventually transferring to a specific four-year school?
No—I have no plans to go to a four-year school.
Maybe—I might want to go to a four-year school eventually, but I'm not sure where.
Yes—I eventually want to transfer to: _____

Now, please give us some feedback on the orientation you just completed. To what extent did the orientation help you understand…

The functions available in WebAdvisor
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

How to log into and use WebAdvisor
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

How to read and understand the course catalog
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

How to read and understand a program plan
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

How to read and understand the schedule of classes
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

My options in terms of what academic areas I could study at Macomb
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

My options in terms of four-year schools I could transfer to
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

Which courses I should take in the upcoming semester
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

How to register for courses
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

How I can get more information on areas of study, transfer options, and which courses to take
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

How I can get more information on employment and career options
❑ Not at all helpful ❑ Somewhat helpful ❑ Very helpful

In a typical year, approximately 12,500 students apply to enroll in the college every fall; approximately 75 percent of these complete orientation (at any time between the beginning of April and end of August), and approximately 40 percent actually register for the fall. In 2012, the survey was attached to the online orientation on July 2 and remained available until August 27 (the Tuesday after the first day of classes). To maintain student confidentiality, surveys could not be individually linked to each student; thus, we could not cross-check students' responses against their actual student records. A total of $N = 3{,}009$ students responded to at least one question on the 2012 survey, representing approximately one third of the students who participated in orientation that year.

In 2013, the survey's start date was delayed slightly to allow for the final uploading and integration of the new video modules, resulting in a survey window from July 15–August 27 and slightly fewer students who responded to at least one question ($N = 2{,}294$). The composition of students taking orientation also altered slightly. In the summer of 2012, only students who were enrolling for the first time in any college were required to complete the orientation orientation, while by the summer of 2013, all new students were required to do so. This policy change did not particularly affect students' profiles in terms of their basic motivations for study. For example, for the first question (regarding anticipated program of study), $N = 2{,}985$ students responded in 2012 and $N = 2{,}277$ responded in 2013, and similar proportions of students indicated that they were undecided on their area of study (17 percent vs. 21 percent) or did not plan to pursue any area of study (2 percent vs. 3 percent). Similarly, for the second question (regarding plans for transfer), $N = 2{,}993$ students responded in 2012 and $N = 2{,}236$ responded in 2013, with similar proportions indicating that they had no interest in transfer (12 percent vs. 15 percent). Although the 2012 and 2013 samples seem comparable in their basic profiles, we nevertheless regard the results in terms of the change in student responses (see Tables 1–3) as descriptive and would caution against placing strong confidence in the statistical significance values.

Activity-based focus groups. In June 2012, we convened four pre-redesign focus groups. Each group was heterogenous in terms of student age, first- versus second-semester status, and decidedness; otherwise, the recruitment process was identical to that

discussed in the "Exploratory Student Focus Groups" section above, with a total of N = 38 student participants. Focus groups were held in an on-campus computer lab. Each student was provided with a pen, notepad, and printed copies of the college's course catalog and course schedule, and also had access to an Internet-connected computer with the online course catalog and course schedule bookmarked on the computer desktop.

Each student received a different self-advising scenario, which included a set of approximately seven factual questions. Students had 45 minutes to work independently and answer the questions to the best of their ability, using the course catalog, course schedule, and any other online information resources they wished.[8] Four scenarios focused on *choosing a program of study* asked students to imagine they were interested in a certain field (e.g., business) and wished to make a certain annual salary after graduation (e.g., $50,000 per year). The first questions asked which of the college's programs of study would be most appropriate for someone interested in this goal, and whether a certificate, associate degree, or transfer to a four-year school would be required to earn the desired salary. Follow-up questions asked more specific details about the program of study. Four scenarios on *choosing a transfer school* provided a general area of study (e.g., criminal justice) and a set of courses and grades that the imaginary student had already earned. For example, the first question on the criminal justice transfer scenario asked students to identify which in-state four-year school would accept the *most* already-earned credits into their criminal justice major. Follow-up questions asked more details about process of transfer to the selected school (for example, is an associate degree required for transfer into this school's criminal justice program?). Finally, four scenarios related to *understanding course requirements* provided students with a specific degree program at the community college, or with a program of study at a popular transfer school, and asked a series of questions regarding the program's course requirements. For example, for the scenario focused on the business management associate degree at the community college, students were asked if a specific math class was required, and how many credits were required to obtain the degree.

[8] All students were able to complete and turn in the scenario with time to spare, with the exception of one student, who continued to struggle with the first question for the entirety of the allotted time.

After turning in the scenarios, the facilitator asked each student to introduce themselves and state whether they had decided on their program of study and whether they were interested in transferring to a four-year school (this information was later used to link each student's decidedness and transfer interest to qualitative codes). Students then discussed the strategies they used to complete their scenario, as well as their own general experiences with course selection, program selection, the transfer process, advising services, and online self-advising.

Approximately a year later, in June 2013, we conducted an additional set of four focus groups using the same recruitment strategies, resulting in a sample of $N = 39$ students. Students completed the same scenarios and participated in the same discussion as did those in June 2012.

To score students' self-advising scenarios, CCRC researchers worked in conjunction with the college's advising office to determine the correct answer (or in some cases, multiple correct answers) for each item. In some cases, two alternate responses were considered equally correct; in those cases, the student received a score of 1 for the item if he or she provided either correct answer and a score of 0 if he or she provided neither correct answer. In other cases, the correct response for an item was contingent upon the student's response to an earlier item. For example, a student might first be asked which program he or she should pursue to meet a particular career goal, with two possible correct responses. For each of these two possible initial responses, the pattern of correct items would then differ across the rest of the questionnaire. Finally, for some items, a particular pattern of correct responses was required. For example, the student might be provided with a list of six courses and asked to select the courses that a particular transfer university accepts toward its journalism degree, with four of those responses being correct. In those cases, students were awarded partial credit (for example, a score of 0.5) for the item, based on the number of correct and/or incorrect responses selected.

In this report, we cluster the self-advising items into three primary types: *course selection* items (for example, required prerequisites for a given program), *program of study* items (for example, what program would be the most appropriate match for a given set of goals, or what type of associate degree is awarded by a given program), and *transfer* items (for example, which of six courses would be accepted by a given transfer

school's journalism program). The three types of items roughly corresponded with the three types of scenarios (e.g., the *choosing a program of study* scenarios were primarily comprised of *program of study* items), but there was some overlap; for example, almost all scenarios incorporated some questions on transfer. In addition to the three specific clusters gauging students' self-advising ability, the scenarios also included some general knowledge questions (e.g., the campus location where students could go to learn more about transfer). Thus, we calculated four types of scores for each student: the student's overall score, *course selection* score, *program of study* score, and *transfer* score, with each type of score calculated as an average across all relevant items. If the student's scenario contained no relevant items for one of the clusters, the student's score was treated as missing for that cluster. Accordingly, the student *N* varied across clusters, as shown in Table A.1.

Table A.1
Student-Level *N*s for Each Self-Advising Item Cluster, 2012–2013

Item Cluster	2012	2013
Overall scenario (any type)	38	39
Course selection	15	17
Program of study	18	19
Transfer	35	36

Finally, to code students' responses during the post-activity discussion, we used the same coding strategies discussed in the "Exploratory Student Focus Groups" section above.

Redesign team interviews. In February 2012, after each redesign team had met once or twice during the kickoff portion of the redesign, we conducted one-on-one interviews with each team member ($N = 17$). Most interviews lasted from 30 to 45 minutes, but two individuals served on both teams, and these interviews lasted slightly over an hour. In June 2013, the same individuals were interviewed again. All meetings were audio-recorded; otherwise, the data recording and coding process was identical to that described in the "Exploratory Faculty and Staff Interviews" section above.