
The background of the page is a photograph of students in a computer lab. In the foreground, a student's hand is visible, wearing a white knitted sleeve, typing on a laptop. In the background, other students are seated at desks with computers, their faces slightly blurred. The overall lighting is warm, with a mix of red and orange tones.

Supporting Student Services and Learning

THROUGH INTERACTIVE TECH

New information technologies enable community colleges to develop a better understanding of the needs and desires of their students, as well as to deploy traditional services to students that include new interactive components. Information technology (IT) has not only enhanced and made more efficient traditional functions of educational planning and advising, such as assessment and monitoring of student goals and interventions, but it has also enabled students to participate more actively in these processes (Ender et al., 1996).



Additionally, IT has made it possible for campuses to have more effective means of gathering data to assess overall trends in the types of services that students are offered.

After a decade of IT implementations, we have learned that the difficulties in the implementation of new IT systems are most often cultural, not technical. The challenge is to affect the implementation process in such a way that the institutional culture participates in and shifts to support the changeover. When implementation is undertaken with an innovative spirit—including cross-functional cooperation and collaboration, mechanisms for learning from the process itself, and feedback—opportunities open up within the institution to reconsider and reshape not only student services and programs, but also the institution's community vision for itself.

Flexibility and Planning

Key to the success of new information technology implementation is the flexibility to adjust it, based on the participation and feedback of key stakeholders. IT implementations are often designed in a vacuum—that is, without the input of the various groups of end-users. As a result, the final rollout of such systems is usually much more problematic than it needs to be. The following examples, taken from interviews with community college administrators and faculty across the country, demonstrate that with the inclusion of stakeholders (including students), new information systems can improve the delivery of services, as well as provide the institution with new forms of data that can help inform future services, interventions, and decisions (Kalsbeek, 1989).

At Metro South, incoming students were asked to define their educational goals on their application. This in turn triggered a series of educational planning events, including academic counseling, an early alert system, and access to other support services, much of which were online. Other questions on the application included: future academic plans, projected need for financial aid, childcare, career planning, or other areas that might affect their ability to complete their educational goals. Based on the online educational

plan generated from these data, a series of letters were triggered that linked students to services they might need, such as assistance in career planning or tutoring.

As the college began to track students' success in relation to their stated educational goals, they found that many students gave up on their intended goals. A subsequent task force found that the application's original questions were too general, and therefore the information students provided was often misleading. For instance, many students filled in "computers" for their field of interest, which could have meant anything from computer programming to learning a specific software application. In turn, the college redesigned several questions on the application in order to make them more specific, providing additional opportunity for students to request services upfront.

Most notable, in this case, is that initial results prompted the college to work across disciplines and across departments to improve outcomes, which led to demonstrable improvements. The technological changes were accomplished through a cross-functional task force chaired jointly by the vice president of academic affairs and the vice president of student services, and made up of faculty, department chairs, student services coordinators, and IT specialists. The working assumptions of the institutional culture made for intra-organizational collaboration and feedback through the process of technological innovation.

The more an organization can tailor its information technologies to its own goals and objectives, the more the existing paradigm may be stretched in creative and productive ways. At Suburban Southwest, a mid-sized community college with multiple campuses, students were assigned to one campus, where their records were maintained, but were encouraged to take courses at any of the other campuses. Partly because of its decentralized information system, the college had problems monitoring its advising services, as well as students' educational plans. If a student who was assigned to one campus came in for counseling at another campus, that office did not have access to the student's paper files.

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The college made the decision to convert, through electronic scans, all of the students' files and paper documents, a process described by one of its key proponents as "a nightmare" and "a time hog." The college had several false starts, which included the purchase of a software program that proved insufficient to do the job. However, the result is that college personnel now have access to hundreds of thousands of student documents on their desktops. While this has been an important first step, Suburban Southwest has not been able to take full advantage of this system because it lacks certain technical capabilities. For example, this new system still does not have the capability to convert scanned documents into recognizable characters, so the college cannot query the database for fields that contain information found in the transcripts and other records.

Administrators felt that the organizational difficulties in this process might have been prevented if they had started their scanning conversion process with a pilot project, in which they could have converted one kind of document for a set number of students. These results could then have been evaluated before moving forward. Other colleges have started small, by maintaining existing technologies until successes are visible. Then, once staff have benefited from a successful product, the rest can be rolled out in stages.

Suburban Southwest successfully leveraged an online counseling pilot project, which later expanded campus-wide. The new system allowed students to communicate in real-time with counselors through a "chat" session, without having to go to the office and wait in line to meet the counselor in person. The counselors were initially distrustful of the technology, expecting it to be more time-consuming than face-to-face meetings and too impersonal for effective counselor-student relationships. The dean who spearheaded the changeover established a pilot project with five counselors, each experienced with computers and open to online advising possibilities. She also included one counselor who was opposed to the technology but who was professional and fair-minded about the related concern of faculty about additional work requirements. Online sessions were made available only to students taking online courses, partly to ensure their familiarity with online technology. When this pilot project was ready to

expand, the counselors who participated in the pilot conveyed their experiences to other counselors, and the associate dean conducted outreach and provided information to help convince counselors of the project's worth, such as students' increased familiarity with computers and proclivity to go online for services and products.

In spite of counselors' concerns, the implementation was, by and large, successful, and online students were able to access counseling without having to drive to campus. The counselors ultimately found the technology very useful for reaching students who otherwise rarely came in. Student feedback was even more positive: they found the service convenient and helpful. Counselors also reported that in online sessions, students tended to stay on task much more effectively, wasting little time discussing irrelevant issues. And the new technology has recently prompted productive discussions about counseling in both face-to-face and electronic settings.

However, as with the conversion of paper documents to electronic files, some significant opportunities related to the new technology may have been missed. Because online sessions were already in text files, they offered easy opportunities for data queries, outcome assessment, quality improvement, and data mining well beyond what face-to-face encounters made available. But in this case, text file information was not saved, and therefore, such opportunities were lost. However, colleges that have the ability to learn through the planning, design, and implementation processes are often at the forefront of applying new information technologies to problems on their campuses.

Encouraging Student Engagement Through Interactive Technologies

There are many examples of administrators and staff working side-by-side with faculty to develop systems that enable students to take added responsibility for their own learning. Degree audit systems, early alert systems, academic-related interventions, and developmental advising are all information systems that engage students continuously in their own planning and success—and rely on cross-functional collaboration.

For example, Suburban West built a degree audit system that allowed students to update their educational plan to reflect their current goals and courses taken. This

mid-sized, suburban community college began the project through a grant to develop an online system to help students explore and understand the courses they needed to take if they wanted to change majors or transfer to four-year institutions. However, counselors reportedly lost confidence in the system after finding errors that stemmed from lack of communication within the college—specifically, programmers had not been informed about the various revised requirements, numbering systems, and new requirements effective for subsequent years. This experience reflects the importance of including all stakeholders in the planning and design so that they possess a meta-level understanding of the project as a whole so that people are able to understand the functions they are asked to perform as a new system is developed.

Other colleges have implemented early alert systems to connect students with services to aid them in successfully completing their courses when they are in danger of failing. Urban West district developed a system over a two-year period with a task force of faculty members and student services personnel. The early alert system was first piloted in the math department on one campus, and was then extended to math teachers district-wide and to the sciences, and is now in effect for all academic programs.

Under the early alert system, in the fourth or fifth week of classes, faculty were asked to fill out forms to indicate those students who they thought were in danger of failing their class. For those students, faculty recommended: (1) meeting with the professor; (2) tutoring; and/or (3) academic counseling. Based on the faculty member's recommendation, the college automatically sent letters to those students, who were then responsible for initiating contact with the respective office. Some students were upset upon receiving these letters and expressed this to their instructors because they did not believe that they were in danger of failing. Yet, ultimately, this was taken as a corollary success of the system since additional communication between faculty and students transpired, which in fact was seen as a significant intervention.

Following a model of developmental advising, in which students have the opportunity to become more integrated in the learning experiences that shape their college life (Astin, 1984; Pisani and Stott, 1998), online interactive tools can be used to prompt stu-

dents to consider broader questions about their lives and career goals and then help them to develop and update a shorter-term educational plan within those long-term frameworks (Frost, 1991). Southeast Urban, a large community college district, received a grant for a system to support a developmental advising framework, bringing together faculty and staff to design and implement these tools. This effort grew from a culture willing to admit their dissatisfaction with student results and outcomes—they had tracked the progress of degree-seeking students to find that too few completed certificates or degrees. They also realized that students need information and guidance for understanding their own learning styles, experiences, and career goals, and that the college's overburdened academic counseling office was unable to meet this need.

Working in teams, staff and faculty identified and focused on five key transition stages for students: high school transition; introduction to college; progress toward the degree; graduation and transfer; and career development. The Web portal offered tools for the five transition stages and links to offices that could provide assistance in each area. Student focus groups were also used and about a dozen faculty members were provided with release time to prepare and then work with colleagues in their department so they could discuss the online tools both in the classroom and in advising. Faculty members at first voiced opposition to advising, for they had (and have) no contractual obligation to advise. However, as faculty learned more about the online tools and available counseling resources, they became comfortable discussing them with students, both inside and outside of class. In fact, in a recent survey, 73 percent of the students said that they had tied their career goals into a classroom assignment.

Also with this system, because the state had a standardized system for course numbering, prerequisites for general education, and transcript formats, any student can search a statewide Web interface for degree programs and degree audits, by institution type and by certificate or degree type, for automatic information about courses he or she may need for transfer to complete a degree at another institution.

In sum, innovative technologies to support student services for student learning are not only possible but are taking place, and their success is greatly enhanced by collabora-

tion across the board—among student service staff, faculty, and students, not just with the IT staff assigned to implement the new systems. The more the system's users are involved in its design and implementation, the more successfully the technologies will serve their purposes. A well-designed feedback loop can smooth the difficulties associated with implementing new paradigms that support student learning, as it moves the process forward. Thoughtful, inclusive planning further creates new opportunities to collect data that yield previously unavailable information on trends across many areas, as well as opportunities for students to, more than ever before, be actively involved in planning and supporting their own learning. The time and effort it takes to strategically roll out new systems and to involve members of the community is well worth it, not only for making the best use of specific IT benefits, but also for developing a culture that supports and creates the best opportunities to enhance student learning.

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