Pathways to College Access and Success

Excerpted from: Pathways to College Access and Success

U.S. Department of Education, Office of Vocational and Adult Education

How can we help all youth have smoother and more successful transitions to college? CBTPs, such as Tech-Prep, dual or concurrent enrollment, International Baccalaureate and MCHSs, may provide one answer. These programs allow high school students to take college-level classes and earn college credit and sometimes provide services to support the many aspects of college transition.

The U.S. Department of Education's Office of Vocational and Adult Education (OVAE) initiated the Accelerating Student Success Through Credit-Based Transition Programs study in the fall of 2003 to better understand the characteristics of these programs and the students they serve. Previous project activities include focus groups with CBTP practitioners and a review of the dual enrollment policies of all 50 states.[1] This report, the final report of the project, presents the findings from case studies of five diverse CBTPs in order to:

- *Describe* the practices of programs that enroll a broad range of students;
- *Identify* the programmatic characteristics that support middle- and low-achieving students in their college courses and their transition from secondary to postsecondary education, and
- *Explore* the ways in which CBTPs may support the secondary-to-postsecondary transition of middle- and low-achieving students by developing a framework that outlines the mechanisms by which these programs might lead to postsecondary success.

CBTPs are widespread and interest in them by policymakers, educators, parents, and students has increased in recent years. A recent survey of a nationally representative sample of public high schools measured the prevalence of these programs. Seventy-one percent of public high schools reported that, during the 2002-03 school year, students took courses for dual credit, meaning they took a course for both high school and college credit (Waits, Setzer and Lewis, 2005).

There has been limited research on these programs. Some descriptive and anecdotal data are available (Bailey and Karp, 2003). Yet little is known about how the programs work, much less their effectiveness in facilitating successful transitions to college.

In addition, while CBTPs are not new, the idea that they should be accessible to a broader range of students is a new approach. In the past, CBTPs such as IB enrolled primarily academically proficient and high-achieving students. However, a growing number of policymakers, education reform groups, and researchers argue that middle- and even low-achieving high school students may benefit from participation in these programs (AASCU, 2002; National Commission on the High School Senior Year, 2001; Lords, 2000).

Yet it is unclear the extent to which middle- and low-achieving students can enroll in credit-based transition programs, or how well such students may fare in the programs. The national survey found that most high schools impose student eligibility requirements for participation in dual credit programs, such as minimum grade point averages or minimum scores on standardized tests (Waits, Setzer and Lewis, 2005). These requirements are often in addition to any imposed by the postsecondary institution sponsoring the course. Thus, while the programs are now widely available, they may be accessible to only a small subset of students.

Previous research suggests that certain types of CBTPs—comprehensive and enhanced comprehensive programs—may be more effective in meeting the needs of middle- and low-achieving students (Bailey and Karp, 2003). Comprehensive and enhanced comprehensive programs provide students with an academically intensive experience, encompassing a significant portion of a student's course work over several semesters or years. Enhanced comprehensive programs, in addition to the academic experience, also include intensive support services intended to address the social and personal skills needed for college success. Having both academic and social preparation seems particularly important for programs seeking to include students beyond the traditional CBTP participant.

This report gives an in-depth look at five different programs, all of which currently, or are making efforts to, include a broad range of students. We hear from practitioners and the students themselves about how these programs are attempting to make some students college-ready who might have been considered noncollege-bound. Promising practices will be described, as well as barriers to such practices. These findings are based on qualitative research that can potentially inform further, outcomes-based research.

The next section of this report presents the five case study sites and examines some of the ways in which contextual features influenced program implementation. The following section presents the cross-case findings, focusing on four key program features—student recruitment and selection processes; curriculum; support services; and data collection and use. As the sites collect limited outcomes data, we briefly discuss the benefits that study participants felt students gained through their CBTP experiences. The report concludes by presenting recommendations for policymakers, practitioners, and researchers.

Throughout this report, the present tense is used when discussing the sites and study findings. Readers should note that the data reflect program practices at the time the research was conducted in the spring and fall of 2004, and we cannot be certain that these practices are still in place. In addition, in order to give the study participants anonymity, the specific research sites were given pseudonyms. When given permission, the name of the general program is used.

Study Sites and Site Contexts

The five CBTPs studied[2] were located in five states—California, Iowa, Minnesota, New York and Texas—and included two dual enrollment programs[3] (one with a career and technical focus), an MCHS, an IB program, and a Tech-Prep program.[4] In order to develop a deep understanding of the programs' structures and features, two visits were made to each site.

The sites chosen represent not only a variety of program models, but also a range of state, district, and community contexts. In addition to describing the context under which each case study site functioned, this section looks across sites to explore the ways that state and local contexts may influence program operations. State contexts include statutes guiding the operations of the CBTP, as well as fiscal issues, state curriculum standards and testing requirements. District and community contexts include local resources (financial and otherwise), as well as institutional and community relationships.

Programs were selected for the study based on staff's assurances that they were accessible to a wide range of students. Southern California Middle College High School (MCHS) is located on the campus of its postsecondary partner, California Community College. California state statutes require that dual enrollment opportunities be provided to students, and specific statutes define the goals of middle college high schools. As do most such schools, California MCHS focuses on providing disadvantaged and low-achieving students with academic and social preparation for college by providing first-hand experiences on a college campus, opportunities to take college credit courses, and a caring environment with small classes and close teacher-student relationships.

The Middle College program in California enrolled 330 students in grades 9 through 12 during the 2003-04 school year. Students take courses at the high school until they are ready to enroll in college courses at the community college. College courses—taught by college professors with regularly matriculated college students—are dual credit, meaning they count toward high school graduation as well as toward college.

Some MCHS students receive an associate degree at the same time that they graduate from high school. In addition, the MCHS helps students access support services offered by the college.

Many of the schools in the large urban school district in which MCHS is located are characterized by low academic performance and a high incidence of violence. In contrast, students and teachers find the MCHS to be a safe, intellectually focused school. During a focus group with MCHS students, they were asked why they chose to attend MCHS. One student described neighboring schools as follows: "You're sent there to learn and they don't really care about their [students at other schools] future, and then that's why most schools....they have security guards to make sure you don't bring any weapons to school or start more violence." Many of the school's teachers make similar comments in describing their decision to work at the high school.

The Southern California MCHS program has operated on the campus of California Community College for more than 14 years. Recent changes in leadership, among other factors, have led to the two partners differing on the program's future. This is due partly to increasing limitations on resources. The K-12 school district is struggling to provide space for all of the district's students and to allocate funding for school operations. The community college also feels space limitations, a problem that has worsened in recent years due to the discovery of earthquake faults on the campus that limit new construction. The strains that the college feels on both its revenue and space resources have led to an increased tendency to limit the high school's use of the college's facilities.

The Metropolitan Counties, Iowa, Dual Enrollment program, also known as the Health Ca-

reers Academy, is a partnership between Rural High School, Iowa Community College, and a local health care center, Regional Medical Center. Iowa state statutes allow for students in the 11th and 12th grades to enroll in dual enrollment programs and explicitly support technically oriented dual enrollment by providing additional funding for these programs.

Located in a rural area outside of a larger city, the Health Careers Academy is one of 11 technically oriented dual enrollment programs overseen by Iowa Community College. It is available to high school students in the seven-county area served by the college. Because Rural High School is the sole high school in its small district, and sends only a handful of students to the program, the Iowa Dual Enrollment program includes students from two other high schools within the Metropolitan Counties area.

The Health Careers Academy is an intensive year long course of study focused on preparing students for health careers. Students can earn up to 10.5 college credits, licensure as a certified nursing assistant, and high school elective credit. In addition to their college course work, students are expected to engage in clinical practice at the Regional Medical Center. They also are given opportunities to observe health care professionals and access to college support services. Students meet daily at either the Regional Medical Center or a satellite campus of Iowa Community College.

In operating the Iowa Dual Enrollment program, Iowa Community College takes the lead in curriculum design, recruiting and hiring instructors, and logistics. Iowa Community College relies heavily upon its high school partners to recruit, screen and select students for the credit-based transition programs. Rural High School is given a significant amount of autonomy in its marketing of the program and student recruitment processes.

The Health Careers Academy, as well as the 10 other academy programs overseen by Iowa Community College, has experienced rapid growth since its inception in the 1980s. Those who work in and with the Iowa Dual Enrollment program attribute much of this growth to the investment of both the college and the area high schools in the programs, as well as to the strong leadership provided by the college.

The Minnesota IB program is located in a large high school with a growing Asian and Hispanic immigrant population in a major metropolitan area. The program's context is shaped not by the state's dual enrollment policies, but by the state's IB statutes, which allow for state funding for teacher professional development and student examination fees. Despite these statutes, budget conditions have left the Minnesota IB program struggling to cover program costs.

The IB program gives students the opportunity to engage in rigorous liberal arts course work created and overseen by the International Baccalaureate Organization (IBO). At Minnesota IB High School, a selection of preparatory courses is offered to ninth and 10th- grade students, after which students choose one of three IB pathways. Courses that lead to the full IB diploma encompass most of the 11th- and 12th- grade years and prepare students for examinations developed and scored by the IBO. Exams that receive a score of four or higher (out of seven) generally lead to college credit, although postsecondary institutions' policies on credit award vary. In the spring of 2004, 75 percent of the IB exams given at Minnesota IB High School received a score of four or higher.

The Minnesota IB program's school district offers school choice to its families. The program serves to attract students to the high school, as it has a strong presence and positive reputation in the community. One Minnesota IB junior stated, "I probably wouldn't have come here if it wasn't for the IB program. I would have probably gone to private school, I think. Because it kind of had a reputation. My parents knew about it, that's the reason they were really going to send me...." In addition to being a school of choice, the Minnesota IB program is open-access, so students do not need to apply to enroll in pre-IB or IB courses.

The Minnesota IB program does not have a postsecondary partner. The training of program instructors and curriculum development is overseen and provided by the International Baccalaureate Organization of North America (IBNA). The school plans to provide IB training and professional development to all of the school's teachers, enabling all teachers to be qualified to teach IB courses. This is critical in the eyes of the principal who hopes to expand the Minnesota IB program so that all students attending the high school will take at least one IB course.

New York City Dual Enrollment program is operated through a partnership between New York City Community College and New York City High School. This partnership is one within the larger College Now program, which is composed of all the City University of New York (CUNY) colleges and approximately 200 secondary schools. The goals of College Now include improving the academic skills and achievement of high school students and en-

suring that graduating students are prepared to do college-level work. The colleges offer a tailored program of academic and preparatory courses and workshops to their partnering high schools. New York does not have state legislation concerning dual enrollment. In its stead, the CUNY system has set forth its own guidelines in such areas as curriculum, recruitment and selection, and the hiring and training of instructors for all College Now programs.

New York City High School is severely overcrowded and during the first year of this research operated on a double schedule to accommodate all of its students; the following year the school operated on a triple schedule. This means that the school day lasts from 7 a.m. to 5 p.m. with different students (freshmen and sophomores as a group, and juniors and seniors as a second group) and teachers assigned to different portions of the day. Program courses are taught primarily by high school teachers at the high school.

New York City Dual Enrollment program offers a range of courses and services to students at New York City High School.

College credit courses are offered after school to students who meet New York City Community College's requirements. These courses are not dual credit in that they do not also yield high school credit. For those students who do not meet the admissions requirements (which are based on state high school exit examinations), New York City Dual Enrollment offers developmental courses as well as an intensive program for English Language Learners (ELL), the Learner's Academy. These opportunities focus on preparing students for their high school exit exams and college enrollment. New York City Dual Enrollment also offers students a variety of support services, including field trips related to course work and writing workshops.

The Dallas, Texas, Tech-Prep Program consists of a partnership between Texas Community College, Dallas Tech-Prep High School, and The Global EDGE Tech Prep Consortium. Tech-Prep, which is federally supported, [footnote 5: Tech-Prep programs are supported at the federal level by the Carl D. Perkins Vocational and Technical Education Act of 1998. For more information on the legislation, please go to: www.ed.gov/offices/OVAE/CTE/legis.html.] is designed to link two years of high school and two years of community college course work through a sequenced program of study in a career or technical field. The federal funding stream creates a three-fold partnership between the high school, college, and consortium. The consortium provides funding to its more than 30 partnering secondary schools, coordinates programming and is responsible for reporting on the program to the college and to the state. The respective departments at the college are responsible for oversight of the Tech-Prep curriculum for the nine pathways supported by the consortium, and provide guidance and support to the program's teachers. All program instruction takes place at the high school by teachers approved by The Global EDGE Tech Prep Consortium.

Texas Tech-Prep High School is the only high school in its formerly rural, but rapidly urbanizing, community in Texas. At the high school, students can enroll in Tech-Prep sequences in a variety of fields, including criminal justice, early childhood education, culinary arts, and information technology. These courses are articulated with the college, meaning that the college oversees the courses but does not automatically award college credit to students. Instead, students completing a Texas Tech-Prep course must enroll in Texas Community College and petition for their credits to be placed on their college transcript.

Although the consortium is housed on the campus of the community college partner, it is not fully integrated into the structure of the college, as it has its own governing board and steering committee. The federal Tech-Prep funding that the consortium receives is in part based upon the number of students who participate in Tech-Prep at the high schools and then enroll in a specified Tech-Prep major at the college. If students do not enroll at the partnering college in their Tech-Prep major, and stay enrolled for the required length of time, the consortium loses funds. This leads to some conflict over program goals among the three different partners and the students participating.

Contextual Influences on Study Sites

As the above descriptions make clear, the state and district environments of our five sites differed considerably. Given the research methods used for this study, we cannot draw strong conclusions about the influence of program context on program structure, nor can we be certain that program structure influences student outcomes. Still, it is important to understand the settings in which these programs exist, because such contexts do present challenges and opportunities for programs.

Throughout the data collection and analysis phase of the study, a number of themes regarding the influence of context on program implementation emerged. This section highlights those themes in order to

provide information about the (potentially unintended) consequences that contextual factors may have for program operations.

Institutional collaboration

States with policies concerning CBTPs often leave the details of collaboration for partnering districts or institutions to address. This level of autonomy is oftentimes welcomed. However, the governance of these partnerships, combined with the institutions' willingness and ability to engage in collaboration, influences the ease with which the partnerships function.

In the case of California, state policy unintentionally hinders institutional collaboration. According to state dual enrollment regulations, California high school students enrolled in college courses are treated as adults. Therefore, parents and high schools do not have direct access to student records, such as transcripts, without the students' permission. The MCHS, therefore, often finds it difficult to keep track of students' enrollment in college courses. This is particularly problematic when those courses are meant to be counted toward students' high school graduation requirements. Thus, to ensure that students receive appropriate high school credit for their college courses, the students must be relied upon to share their enrollment information with the two institutions.

Also in California, the leasing agreement between the high school and the community college is the only official documentation of any collaborative duties or responsibilities. Interview respondents often spoke of misunderstandings resulting from either the MCHS or California Community College being unclear of what is expected of them and how they are benefiting from the partnership.

In contrast, the roles and expectations of each partner in the Iowa Dual Enrollment program are clear to all involved. Responsibilities for program activities are formally distributed to specific individuals throughout the partnership. Those involved at the college, in particular, have responsibilities for the program as part of their job descriptions. Study participants indicate that such clarity helps the program run smoothly and makes all partners feel they are valued and respected members of the partnership. The high school district leadership recognizes the significance of Iowa Community College's leading role in coordinating the numerous details of the program. As the district superintendent said, "You have to have strong leadership on the college end, somebody that's kind of your coordinator or your contact person, and that's going to work with the schools and build a relationship with the schools, and vice versa. The schools don't have the same flexibility that the college staff does. ..."

Standards, testing and curriculum

State standards and testing requirements influence the operations, courses and activities of the programs involved. In some cases, they limit student access to the CBTP, while in others they complicate efforts at aligning program curricula.

At three of the case study sites, students' ability to enroll in program course work (either at the developmental or college level) is influenced by student performance on state tests. In Minnesota, students who have not passed the eighth grade basic skills test must enroll in the basic level of English or mathematics, which prevents them from enrolling in IB preparatory courses. At Texas Tech-Prep High School, students who do not pass the state exit exams are ineligible for elective courses, and thus cannot enroll in Tech-Prep, as the program's courses are considered electives.

In the New York City Dual Enrollment program, eligibility for placement in college credit-bearing courses is determined by a minimum score on state high school exit exams or the Preliminary Scholastic Assessment Test (PSAT) or Scholastic Assessment Test (SAT). Yet, students who do not meet the requirement can enroll in non-credit developmental courses that help students improve their reading comprehension and writing skills. Thus, doing poorly on these exams does not preclude eventual enrollment in college courses, and the program is structured to offer students help to improve their performance.

In some cases, state curriculum requirements at the secondary school level seem to compete with the content of the college course curriculum. At both Texas Tech-Prep and California MCHS, high school faculty feel that the secondary education system's curriculum requirements are not aligned with the community college's curriculum, which often forces them to make instructional choices as to which requirements they follow. For example, a teacher in the Texas Tech-Prep program said that the different requirements result in a course curriculum that could not possibly be covered in the time allotted. The state's required curriculum for high school courses includes content not covered by the college curriculum, and vice versa. Thus, this teacher often has to choose which content to cover; because her primary affiliation is with the high school, she chooses to cover those standards rather than the college's.

In many sites, then, program staff find it challenging to

address state requirements for high schools within the context of a CBTP. Though these challenges are not insurmountable, instructors and administrators in these programs do find that having to align complex state requirements with those of the program or college proves difficult at times.

Resources

Funding, staff time, and space are resources that seem to be influenced by state and district contexts. Programs receive funding from a variety of sources. While the Texas Tech-Prep program is federally funded and the New York City Dual Enrollment program is supported by the City University of New York (CUNY), the majority of the funding supporting the programs at the other three sites comes from the operating budgets of the secondary schools, which are from either state or district revenue sources. Funding the programs in this latter manner makes the programs particularly sensitive to state budget shortfalls or changes in priorities. California and Minnesota in particular have experienced shrinking education budgets for the past several years.

The question of expanding access in a context of fiscal constraint weighs heavily on the minds of many of the study participants. The Minnesota IB program faces the possibility of asking students and families to pay the IB exam fees in the future, which could pose a deterrent to broad student participation. In the more than 10 years that the program has operated, the district, using portions of its state allocations, always has heavily subsidized or wholly paid these fees. In contrast, the New York program is considered part of CUNY's core mission and so is not perceived as being subject to funding cuts by program staff.

High school and community college administrators and program staff expressed that committing staff time to the CBTP has been extremely important to the quality and sustainability of the program. The Minnesota, New York, Iowa, and Texas programs all provide resources to support program coordination, though not necessarily on a full-time basis. The coordinator for the Minnesota IB program has an additional planning period in order to accommodate her coordination and teaching roles both within the IB program and the school in general. In Texas, federal funds provide for the consortium staff, as well as a stipend for the high school-based coordinator. In some cases, program instructors receive compensation as well from the program or district. Such practices help ensure that program staff have adequate time and incentives to support the CBTP. Still, for most of those involved, their CBTP responsibilities are in addition to other school or institutional commitments.

Classroom space also influences the operation of the CBTP programs. In the New York City Dual Enrollment program, the pool of teachers available to teach in the program is restricted by the school schedule that was imposed to alleviate the school's severe congestion. During the years of the study, the school ran for multiple sessions each day. In order to be free to teach the College Now courses in the afternoon, at the end of the juniors' and seniors' school day, teachers need to be assigned to an early schedule. In California, the community college has become more vocal in arguing that its own space limitations means it can no longer dedicate space to the MCHS. The school district, however, is undergoing space constraints of its own and does not want to lose the college location. As a result, the partnership has become strained, calling into question the ability of the MCHS to continue to operate on the college campus. Thus, diminishing resources have the potential to negatively affect these programs.

Findings

The goal of the Accelerating Student Success Through Credit-Based Transitions Program project was to explore the program features that might help middle- and low-achieving students successfully make the transition from high school to postsecondary education. In investigating program practices at each site, the study focused on four programmatic features and processes: student recruitment and selection, curriculum, support services, and data collection. For each feature, the researchers investigated the current practices of the case study sites, identified those practices that seemed most promising in meeting the needs of middle- and low-achieving students, and identified barriers to implementing them. Given that the programs' outcomes data are limited, the last part of this section describes what practitioners and students perceive the benefits of the programs to be.

Student Recruitment and Selection

Given this study's focus on the promise of expanding CBTPs to middle- and low-achieving students, the five programs' student recruitment and application procedures were a particularly significant area of study. Programs were selected for the study based on staff's assurances that they were accessible to a wide range of students. It is important to remember, however, that for some of the programs the initial application process and procedures cover both general program and col-

lege course admittance (such as in Iowa and New York City), while in other programs the initial application is for entry into the program with a subsequent process necessary for college course enrollment (such as in California and Texas).

Much of the student recruitment for all the programs occurs informally. For the most part, high school-based counselors and teachers advertise the different programs to students, often using materials printed by the college partners. At the California site, MCHS staff visit local feeder schools and broadly disseminate written information and applications. Similarly in Minnesota, information is shared with potential and incoming students and their parents. In both New York City and in Texas, the high school-based program teachers must recruit enough students to fill their courses, or they will not be offered.

The screening and selection process varies from site to site. In California, where there are many more applicants than spaces, the MCHS staff use a rubric to score and rank students' applications. They look carefully at grade point averages (GPAs), test scores, any disciplinary- related issues, and students' essays. In New York City, students who wish to enroll in college credit-bearing courses must have certain minimum test scores, as required by the college. However, there are no admissions criteria for students entering the program through the noncollege credit-bearing courses. The Texas Tech-Prep program has an application form that asks for students' GPAs and interest in the course work; however, students are rarely turned away. Finally, students interested in the Iowa program and Minnesota IB course work simply register for those courses. For the two career-themed programs, screening focuses on whether the students show a serious interest in the topic area. As the Texas culinary teacher said, he does not want students who think they are signing up for "Eating 101."

Who are the students participating in these programs? In general, for all of the programs, the students must be motivated. Students applying to MCHS have to plan ahead because they must submit essays and prior school records. The curriculum of the Iowa Health Careers Academy program is intense and accelerated, and the clinical component

requires students to perform their work before regular school hours. At the Minnesota High School it is common knowledge that the IB program requires a great deal of hard work. New York City's dual enrollment program occurs after school, so students have to be able to handle additional course work on top of their regular curriculum. As a New York City school counselor says, "I think the kids who are academically motivated and want to learn and want to take extra stuff [course work and activities], they hear [about] it from their friends." Additionally, although the Texas Tech-Prep courses meet during the regular school day, several of the concentrations require independent or off-site work, and earning the college credits requires planning and follow-through.

The students also have to be mature and responsible. "Maturity" was heard repeatedly in the interviews, when program staff were asked about student screening. Participating students must act maturely, particularly those who leave their high schools to take college courses (as in California and Iowa). As the Iowa instructor says, "This is not a class for somebody who is having attendance problems and other issues at the high school, because there's a lot of maturity involved."

When directly questioned about the students in the programs many respondents said that they aim to have a "mix" of students, or primarily students "of the middle range." However, the data show some ambiguity regarding participating students' backgrounds and abilities. For example, while one New York City program teacher says that the program targets "middle-level students, the ones that I suppose are more likely to enter the community college system. ...." he goes on to say that, for the College Now classes he teaches, "I target probably some of the better classes in this school. ..." Another teacher says that, "I hate to say it, but it's the top of the class that winds up in these certain classes." At the MCHS, one respondent describes the student population as including at-risk students, while another individual says it does not. Thus, some contradiction is evident among our respondents' views of the kinds of students their programs were serving.

This contradiction can possibly be explained by the fact that four of the programs have recently been, or are in the process of, making subtle adjustments to their recruitment and selection processes. Programs either recognized as being elite or with very specific entrance criteria, Minnesota IB and New York City Dual Enrollment, are attempting to broaden their student targeting. California and Iowa's open access programs are tightening up their screening processes. Each of these programs has specific reasons for their actions.

Although clearly an academically challenging program, Minnesota IB staff and students characterize the program as "open to anybody." They said that

entry into the program is "self-selection"—that the decision to enroll is up to the individual student, who must decide whether he or she wants to be challenged. As the school's parent coordinator says:

> I think the program is really accessible. I think the challenge is for us to communicate with those students and families and have them accessible. As far as I know, we've never had—there haven't been students who want to take IB classes that haven't been able to.

However, at the same time, staff and students are recognizing that, despite the official open-access policy, there are some informal barriers to entry. It appears that students who are already on an accelerated track in middle school are those counseled to enroll in IB courses at a later time. In addition, the racial and ethnic composition of the IB students population does not reflect that of the school as a whole. As both students and staff noted, this results in a comfort issue; one student said, "People have not taken [Advanced Placement] AP or IB classes because they know they'll be the only one that's of color or of a different race, so they won't take the class."

Thus, there is beginning to be an understanding that an elite, non diverse program, however officially open-access, may be self-perpetuating without measures taken to specifically broaden the student population. To do so, program staff are making strong efforts at communicating with the counselors and parents of incoming students to clarify the open-access nature of the program. In addition, the IB coordinator is working with the coordinator of the school's Multicultural Excellence Program (MEP) to develop support systems encouraging minority students to enroll (or remain enrolled) in IB courses, and helping IB students of color to develop a network of supportive peers.

In the case of the New York City program, the coordinators want to ensure broad access by a high school population increasingly composed of immigrant and English Language Learner (ELL) students. Yet, given the college's requirements for enrollment in credit-bearing courses, only certain students can enroll in those courses. As will be described in the section of this report on curriculum, the coordinators developed a developmental sequence of courses, with different entry points, some open to any student. Thus, this program is making strong efforts to bring in students of all abilities and prepare them for college course work.

In contrast, California MCHS and the Iowa Health Careers Academy have become more selective or are considering doing so. There is widespread agreement among the staff of the MCHS that recent cohorts of students are more mature and at a higher academic level than were prior ones. Because of the large number of applications the MCHS receives, the school can be selective about whom it accepts. In addition, conflict with the sponsoring college in previous years over disruptive and unprepared high school students likely contributes to the high school screening students more carefully. As a high school administrator stated:

> I think the college kind of got tired of the kind of student they had here because they were hard to control in this open environment. ... They weren't preparing them to get to college; they were just kind of here and expected to go take some college classes, and it doesn't really work like that.

Similarly, Iowa Community College trusts Rural High School staff to adequately screen and select students. However, after incidents in the last few years where students enrolled because they saw an opportunity to leave the high school for part of the day, the college coordinators and particularly the instructors favor better screening. Thus, screening of students, or lack thereof, has implications for a smooth-running partnership between the high school and college partners. In addition, the content of the program has become more difficult. As the college-based coordinator said:

> Our program has changed. ...There's more rigor in the class now. One of those reasons is we've added a medical terminology class, and that is hard. ...If a student is not a little bit better student, they may have a lot more trouble.

In Texas, teachers speak of the application process as determining a "good fit" so that students will succeed in the course work. Also in Texas, an increase in program demand allows teachers to more carefully select their students. In general, many respondents spoke against open access and in favor of screening to ensure that students would be successful in their college course work.

Promising Practices

Overall, the five case study sites enroll a range of students and do not limit participation to higher-achieving students. It should be noted that access to the programs is not limited by state policies. While four of the five states have policies addressing CBTPs (New York State does not), the policies comment very little on student eligibility criteria, in contrast to the policies of some other states.

However, not limiting participation does not ensure broad access. In general, if CBTPs want to engage a broader range of students, there are several measures that can be taken.

Programs should have more formal and strategic recruitment strategies. In particular, program staff should have a consistent understanding of which students are eligible and which students are to be targeted. Program staff should thoughtfully analyze which students would best benefit from the program, and whether these are the students applying. This analysis ought also to consider how the program structure might affect which students participate. For example, the New York City Dual Enrollment program informally limits which students have access, because the program is run after-school and does not provide dual credit. Students who have after school commitments (such as employment, sports, or other extracurricular activities) are unable to participate in the program.

More formal recruitment activities should involve the middle school and high school counseling staff. Also, since it appears that much recruitment is done by peers, peer recruitment strategies could be formalized and institutionalized. Better and broader outreach to parents might also have an effect. Several students in the Minnesota program said they were encouraged to enroll by their parents, and the program is trying to reach parents with more targeted program information. Other programs tend to involve parents after their child is enrolled, not before.

It does appear that making efforts to include middle- to low-achieving students does not mean that programs will be entirely open access. Coordinators and teachers felt strongly that some screening of students is necessary before they are allowed to enroll in college credit course work. Students must have adequate academic and personal preparation if they are to succeed in their college level courses. In addition, evidence from the California and Iowa sites suggests that unprepared students do cause strains in the secondary-to-postsecondary partnership.

The Iowa program gives an excellent example of how a screening process can be structured and used to communicate to all students how they can prepare themselves for program participation. This process is not being used at Rural High School, the case study high school site, but at another high school participating in the Health Careers Academy.[6] The program coordinator created a rubric to use in screening student applicants that includes mathematics courses taken, attendance, behavior, and state test scores. The rubric then is shared with students who express interest in the Health Careers Academy. In this way the rubric helps students think about the future and plan accordingly. Because students may apply to participate in the Health Careers Academy in the 11th grade, if their rubric scores are low relative to other applicants, they can work to improve their marks on the different criteria and apply again for the 12th grade. Any student can potentially meet the requirements and participate. The high school principal said that the rubric helps students understand that they are making a commitment to the academy and that "it is a privilege to be in the program."

Barriers

Sites encounter difficulty recruiting and selecting middle- and low-achieving students into CBTPs for a number of reasons. Sites struggle to balance access with the desire to ensure student and programmatic success. The academic and social skills demands of the programs can restrict access to students with certain skill sets, and in some cases the postsecondary partners reinforce the importance of setting a minimum level of entry standard.

In addition, the programs tend to lack clear systems for recruiting students. Some rely heavily on word-of-mouth to inform students about the program. Though this appears to be effective in reaching students who are engaged in the school, are motivated, or have strong relationships with their teachers, such recruitment does not maximize knowledge about the program among the high schools' student body as a whole.

In some sites, the CBTP is not well-understood by those not involved. Some guidance counselors know of the program, but not enough to counsel students to enroll in it. Additionally, some teachers and guidance counselors who are not involved in the program do not understand the program's purpose or target student, and so actively discourage some students from enrolling.

Finally, programs struggle to attract disengaged students when the students do not see a benefit to their participation. Particularly if a program meets after school, students are sometimes reluctant to enroll in it, as they do not want to take on the extra work. Thus, a number of sites are seeking to find ways to answer students' question of "What's in it for me?" If sites have trouble finding ways to convince students of the CBTPs' relevance, they cannot convince them to enroll.

Curriculum[7]

Comprehensive and enhanced comprehensive CBTPs, by definition, have curricula that encompass much of students' high school experiences, and each of the five case study sites have created a multicourse curriculum culminating in college credit.

The data indicate that CBTP course work falls, loosely, into

three categories— high school, developmental, and college credit. Though these categories may overlap in some cases, they are distinguishable by their curricular goals. First, CBTPs may include high school course work. These courses count toward students' high school graduation requirements. They may also prepare students for college course work by giving them the basic knowledge and skills necessary for success in college-level classes, particularly when instructors are aware of college expectations and infuse them into their classes. However, the primary purpose of high school course work is to enable students to meet high school graduation requirements.

High school courses may be enough to prepare students for college course work. However, some students—particularly middle- and low-achieving students—need additional preparation for college course work. To address their needs, and to maintain access to college courses for a range of students, two of the programs established an intermediary series of courses. Developmental course work is explicitly designed to prepare students for the demands of college-level work. Unlike high school courses—which are aligned to high school graduation requirements—developmental course work is closely aligned with college course work. Finally, CBTPs include college credit course work. These are the capstone experiences that define CBTPs. Depending upon the program, students may earn college credit in a variety of ways.

High School Courses

High school courses, first and foremost, meet the requirements for high school graduation. They are also the first step in preparing students for college course work, and the data show that they can help students gain the skills necessary for college. In New York City, for example, the regular high school mathematics and English course sequences culminate in state examinations called the Regents exams. The City University of New York has aligned its entry requirements with these exams, so that any student receiving a score of 75 or higher is considered qualified for college admission. Students who are successful in their regular high school course work, therefore, also are prepared for success in college.

A similar situation occurs in California, where MCHS teachers deliberately use their course content (intended to fulfill high school graduation requirements) to prepare their students for the expectations of college courses. For example, the high school English teacher has students make use of the college library when writing a research paper in order to teach them research skills. He stated, "I give them college-level work but I don't treat them like college students. I work them through it. I spend more time breaking it down for them..." Students' skills are developed through regular high school classes in ways that help them prepare for college.

The sites in the study use regular high school courses to prepare students for college in two ways. The first way, as illustrated above, is to explicitly link the high school curriculum to college course expectations. Program teachers and staff in California, Minnesota and New York make deliberate attempts to align the demands of high school and college credit courses. (It should be noted that, particularly in California and New York, the extent to which high school and college course work are linked varies significantly among teachers.)

A second approach is to assume that regular high school courses prepare students for college-level work without making special effort to ensure that they do so. This is the case in Iowa and for some of the Tech-Prep concentrations in Texas.[8] The regular high school curriculum is not clearly aligned with college credit courses, though success in high school courses is seen by program staff as an indication that students are ready for college credit courses. For example, in Iowa, completing high school biology is seen as evidence that students have the background knowledge to enter the Health Careers Academy. However, the high school biology teacher said that human biology—the basis for health sciences courses—is not covered in her course. Thus, when high school courses and the CBTPs are not explicitly linked, there is no way to ensure that high school course work prepares students for admission to college credit courses, or even to college generally.

Developmental Courses

At the Minnesota and New York City sites, CBTP staff do not rely exclusively on the regular high school curriculum to prepare students for college courses. Additional classes, developmental course work, have been created to explicitly address the skills and knowledge students would need in college courses. The primary goal of these classes is to prepare students for college course work, rather than to ensure high school graduation. Depending on the program, these courses may provide the students with credit toward high school graduation or with elective credit.

At both sites, developmental courses are seen as a way of ensuring that a broad range of students have access to the CBTP, since they focus on skill

development. As the New York City college-based coordinator explained, middle- and low-achieving students often need additional academic instruction to slowly build their skills to a college-ready level: "…what we need with these kids is time, and sequence."

The Minnesota IB program has a clear preparatory course of study that builds students' skills during ninth and 10th grade in order to prepare them for the IB diploma program. These courses meet high school graduation requirements, yet they are also significantly enriched and modified in order to develop students' academic skills. Moreover, unlike high school courses, their primary goal goes beyond high school graduation to preparing students for the IB diploma. The pre-IB course content and pedagogy are specifically targeted toward IB demands. Pre-IB courses are closely aligned with the requirements of diploma courses and build students' skills in a sequential manner over multiple semesters. The result is that, by their junior year, students are familiar with and able to achieve the expectations of diploma courses, and they have the higher-level critical thinking, reading, writing, and mathematics skills necessary for success on IB exams.

Any student in the school is permitted to enter pre-IB courses as long as they have passed the state's eighth grade reading exam. By keeping pre-IB classes open-access, the Minnesota program believes that it ensures broad participation in the IB program. Students entering ninth grade with low or mediocre academic skills have two years to build their skills. One shortcoming of the pre-IB course work, however, is that it does not allow students to enter the program at any point in their academic career. If students do not enroll in developmental courses in ninth or 10th grades, they are likely to have difficulty entering IB diploma courses.

The New York City Dual Enrollment program created a developmental course of study in order to encourage students who are not ready for college course work to participate in College Now. Students who do not receive a score of at least 75 on their state high school exit exams are provided with a number of opportunities to enhance their skills so that, over time, they become prepared for college course work.

New York City Dual Enrollment offers two developmental courses for students in need of significant remediation. The Learner's Academy is a two-year sequence targeted at preparing ELL students for high school exit exams. High school and college instructors jointly teach this theme-based course, which also includes significant support services and enrich-

Exhibit 2.
Minnesota IB Classroom Observations

Following is an excerpt from an observation of a diploma-level International Baccalaureate course. It demonstrates the level of rigor often found in courses offered through credit-based transition programs. This course focused on knowledge—how knowledge is constructed, how people gain knowledge, and how to evaluate knowledge. The class was beginning a unit on the construction of knowledge in mathematics.

> In order to get the class thinking about math, the teacher put a proof on the board. Through a number of steps, he demonstrated that 2 can equal 1. This set off a furor in the room. Students began calling out that it is not possible because the teacher did it incorrectly. "No! You can't use your given, it needs to be two equations to bring it back in!" The students started to have side conversations amongst themselves as they discussed the merits of the proof.
>
> The teacher said that he didn't have the answer, and a student got upset with him: "Why do you do this? You bring in random things that nobody knows the answer to and it drives me crazy!" The teacher addressed the dissent in the class regarding the validity of the proof: "It made sense to me. Obviously, there's something wrong. On your own, see if you can figure it out. What is wrong with it?"
>
> The real reason he gave the proof, the teacher explained, is to show the students that "truth" can be defined in different ways. How does mathematics define truth? The class began a discussion of this question. The discussion touched on a wide range of topics, including Morse Code, science fiction, language, and Plato. One student noted that probabilities are logic and math, and the teacher said that logic, then, is the basis of math. The student replied, "Or is math the basis of logic?"

ment activities. Students earn high school elective credit for their Learner's Academy courses. The program also offers New York City Community College's remedial English course at the high school. This course helps students improve their writing skills sufficiently so that they can progress to college credit course work, and they earn one high school elective credit.

New York City Dual Enrollment also offers two intermediate developmental opportunities to students, called Gateway courses. These are college courses offered by New York City Community College that do not require a 75 Regents exam score for enrollment. Instead, students with C averages or better in their high school English classes enroll in Gateway courses, which focus on literacy skills. Rather than garnering general education college credit, these courses lead to elective college credit that is less easily transferred to other postsecondary institutions. Gateway courses build students' reading and writing skills while serving as an introduction to college, though with less of the rigor of general education college credit courses.

In both the Minnesota and New York programs, successful completion of developmental courses leads to enrollment in college credit courses.

College Credit Courses

As the defining feature of a CBTP, all sites in this study offer students the opportunity to take college courses. Of the five sites, the California MCHS is the only one where the students take college credit courses on the campus with regularly matriculated college students. New York City Dual Enrollment, Texas Tech-Prep, and Minnesota IB all offer courses at the high school, with high school instructors certified as college adjuncts or trained in IB curricula teaching the courses. (The exception to this is the Learner's Academy in New York, in which students spend half of their time at the high school and half at the college.) In the Iowa Dual Enrollment program, high school students comprise their own class, which meets at a local hospital or a college satellite center. The instructor, however, is a college adjunct and not a teacher at the high school.

At those sites where the college courses are being delivered by the college partner exclusively for high school students (Iowa, New York, and Texas), the college provides curriculum and instructional supervision. The control exerted by the college over the curriculum and its delivery varies. In the Iowa Dual Enrollment program, the college tightly controls the curriculum by giving program instructors PowerPoint slides (similar to those used by professors at the college) for each lesson and providing them with course materials. In other programs, the college gives the high schools more leeway in implementing course objectives. At Texas Tech-Prep, for example, teachers are given a set of student outcomes by the college, but they are given significant freedom in achieving those objectives. In New York, teachers submit their syllabi for approval by the college department offering the course.

Though it can make sense to give high schools flexibility in curriculum delivery, there is evidence in some instances that the courses, or portions of them, do not resemble work typically found in a college course. For example, some teachers replace long readings with shorter ones so as not to overburden students.

Exhibit 3.

Observation of a New York City Dual Enrollment Developmental English Course

Following is an excerpt from an observation of a College Now English 99 class. For students with difficulties in writing, English 99 is a developmental course focusing on writing skills by incorporating the expectations of college course work.

> The teacher passed around a handout and said he had an exercise for the day's class. The page had two paragraphs for the students to edit. The students began to quietly redo the paragraphs, during which time the teacher called the students up front individually to talk about their course work. When all the individual conferences were completed, the teacher told a male student to, "Take us through the first one, tell us the corrections you made along the way."
>
> The students gave different ideas as to how the paragraph could be rewritten. The teacher complimented some of the students for their ideas; and the exchange of the ideas went back and forth between the students and the teacher.

It should be noted that college credit courses do not automatically yield college credit for students. Credit earning varied among sites. In California and Iowa, students earn both high school and college credit for their college credit courses, and the college credit is placed automatically on a college transcript. In New York City, students also earn their credit via college transcript but do not earn high school credit. For students in all these sites, if they matriculate to a college outside for their CBTP partnership, it is the receiving institution's choice as to whether or not credit will be granted for the CBTP course.

In Minnesota and Texas, the credit earning process is not done via transcript. IB students take an end-of-course exam. Successful completion of the exam earns them credit if they submit their test scores to the college they enroll in, and the college chooses to grant them credit for their scores. In Texas, students earn articulated credit through the Tech-Prep program. After successfully completing their Tech-Prep course, students must enroll in Texas Community College, declare their major to be the same as their Tech-Prep concentration (students in the criminal justice concentration, for example, must declare criminal justice as their major), and take at least six credits at the college, in that major. Once they have completed these requirements, they can petition the registrar's office to place their articulated Tech-Prep credits on their college transcript.

When asked about these credit-earning procedures, students generally indicated that they understood the procedures and did not find them onerous. The students had not yet, however, tried to use the credits. Restrictions placed on college credit in a number of sites indicate that students may not always receive college credit for CBTP participation, so that, if credit earning is their primary goal, they may be disappointed.

Curricular Pathways

Frequently, staff at the study sites speak of arranging CBTP experiences in an ordered, progressively challenging fashion that move students from one experience to the next. Such course sequences can be conceptualized as curricular pathways providing structure to students' academic experiences. Curricular pathways are clear routes that students may use to moves from one level of course work to another, linking high school courses to developmental courses, and developmental courses to college courses. Students need not engage in each step of the pathway, as in New York City, where students may move directly from the Learner's Academy into general education college courses, bypassing Gateway courses if warranted. However, the steps should be available and logically ordered. A number of individuals in our sample indicate that curricular pathways can play an important role in helping CBTPs meet the needs of a range of students, because they help students build their skills in a progressive manner. The New York City Dual Enrollment program coordinator explained, "I think it is really important that we do whatever we can ... to strengthen students' communication skills, particularly reading and writing. But not to do it in a quick fix way, but to do it...with an idea and a fix on sequential development."

Although every case site in the study has some sort of curricular pathway, not all of them create pathways leading from one level of work to another. The California site does not always help students create logical progressions through their high school and college course work. In fact, in California and Texas, students often enroll in high school courses after taking a college class. As a result, college courses are not a culminating or capstone experience for students, nor does the rigor of students' course work necessarily increase over time. In Iowa, completion of the Health Careers Academy is certainly a step in a pathway leading to a college degree in the health professions, yet there is not a clear pathway from high school course work into the Academy.

The Minnesota IB program does have a curricular path to prepare students for the Diploma program. However, as noted earlier, this pathway does not include a developmental component that could help students enter the program after the ninth or 10th grade. In fact, according to some study respondents, the curricular pathway serves to discourage open access by creating unequal educational experiences for students within the school. Students who do not enter the pathway early in high school are unable to enter diploma courses because they do not have the proper background or skill set. An IB teacher notes this problem by saying, "...they just sign up for whatever their freshman year, and then in the sophomore year they decide they'd like to do more IB courses and then they run into a problem because...they don't have the proper prerequisites."

The New York City Dual Enrollment program has a curricular pathway spanning developmental and college courses. Students can engage in a variety of developmental activities, as described earlier. They then may move to the Gateway courses, which prepare them

for college general education classes. Each step in the pathway serves a distinct purpose in preparing students for college-level work, and students who do not progress out of Gateway courses, for example, are still better prepared for college than they would have been without any College Now activities. Moreover, because students do not need strong academic skills to enter the pathway, broad access to College Now is possible.

Promising Practices

The findings from the five case study sites can be used to create a model of a promising credit-based transition program curriculum that, though in need of confirmation through future research, provides a sense of how curricular pathways might be structured in order to provide access to the program and to college for a wide range of students. The data suggest that the primary component of an ideal curriculum would be the presence of a clear curricular pathway encompassing high school and developmental course work, aligned with the demands of college course work, and culminating in student enrollment in a college course. Curricular pathways should have multiple access and exit points in order to allow students of all academic levels to enter the pathway at any point in their academic career. In this way, pathways help ensure that middle- and low-achieving students have access to CBTPs.

Curricular pathways also may provide students with a clear set of expectations for entry into college credit courses. Sequential pathways communicate to students the steps they must take toward being college-ready. Even if a student does not proceed to the final step, moving through a curricular pathway with set standards at every level should advance students' academic skills and college readiness.

The first step in a curricular pathway should be high school course work that is aligned with both high school graduation requirements and the requirements to enter college credit course work. Alignment with college expectations should be made explicit, in order to deliberately help students prepare for college, even as they complete their high school graduation requirements. For many students, completion of such aligned high school course work will be enough preparation for entry into college credit courses.

Not all students will be ready for college-level study as high school juniors or seniors, however, so developmental course work should be present in order to provide the additional academic support needed. Again, this course work should be closely aligned to the demands of college courses. A range of developmental activities also should exist, thereby allowing students with varying academic needs to have appropriate entryways into the pathway.

Aligning high school and developmental curricula with college expectations is heavily reliant on strong collaboration and communication among high school and college instructors. High school faculty understand the capabilities of their students and what methods will most effectively help them be ready for college-level work. College faculty are knowledgeable of the content and pedagogy used at the college and can communicate this to high school faculty. They should drive the objectives and standards of developmental course work, while high school faculty drive the pedagogical approaches used to reach those standards.

Such collaboration is seen in the Learner's Academy in the New York City Dual Enrollment program, as well as in the New York program's use of college curricula for developmental activities. Both efforts aim to ensure that developmental activities prepare students for the actual demands of college credit courses.

In fact, the developmental aspect of the New York City program seems particularly promising, because the program has multiple developmental activities and entry and exit points. Students of any academic level can enter the pathway and build their skills. Those students with stronger skills may immediately enter Gateway or even general education college credit courses. The presence of the Learner's Academy ensures program access even for students whose first language is not English.

The data make clear, however, that merely having pathways is not enough. An ideal program would have transparent pathways. Without being clearly visible and easily understood, pathways may serve only to confuse students. The students in New York City Dual Enrollment, for example, are not always sure of where their current course work can lead them. In addition to helping students already in the program navigate the pathways, transparency can promote broad student access to CBTPs. Ensuring that students—both in and outside of the program—have clear information about curricular pathways, and helping them to plot a course, means that students who are less motivated or less engaged in school will not be inadvertently excluded. Transparency may be accomplished by more strongly including guidance counselors in the program so that they can make students aware of the program's pathways as they help students plan their high school course work.

Creating transparency for curricular pathways relies heavily on strong communication not only between program

faculty and students, but between program faculty and nonprogram faculty as well. Instructors not involved in the CBTP should be made aware of the standards students must meet in order to enter college courses. This is so that they can help students not already involved in the program meet the standards for entry, to give all students the tools they need to enter a CBTP pathway, and to make sure that pathways do not become de facto sorting mechanisms.

An effort toward this end is being made in the Minnesota IB program. The mathematics department asks all IB and non-IB instructors to cover material considered prerequisites to IB diploma-level study. The department also has created an alternate route to an IB diploma mathematics course that does not require participation in pre-IB courses. As a result, students can enter IB mathematics study at any point in their career. The success of this arrangement, however, is predicated on the willingness of non-IB teachers to understand and cover IB material. Effective communication between IB teachers and their colleagues makes the arrangement possible.

Curricular pathways should, of course, lead to student enrollment in a college credit course. These courses will vary in their content and structure according to the goals of the program and contexts within which they are offered. However, college credit courses should mirror college-based courses as closely as possible. They should be overseen (and preferably taught) by college faculty in order to ensure that content, pedagogy, and outcomes align with those at the college.

Barriers to Implementation

Certainly the contexts within which CBTPs exist can create barriers to the effective collaboration and communication needed to implement transparent, developmental curricular pathways.

First, these activities require a significant investment of time, something that is often lacking in the school day. At most sites, instructors at the high school and college, as well as administrators, profess a deep belief in the value of professional collaboration. However, they are hard pressed to find the time to engage in such collaboration, given the other demands placed upon them in their jobs.

Moreover, collaboration is predicated on ongoing trust between the partnering institutions. In two of the partnerships in the sample, one or both of the partners lacks confidence in the other's willingness to engage in meaningful collaboration. In one case, the secondary partner feels the college based coordinators do not respect its input and do not understand the constraints under which it operates. In another, the college administration feels that the presence of high school students on its campus undermines its status as a college, and some college faculty object to teaching high school students. Once trust is established between partnering institutions there comes a greater willingness to be flexible and to reach compromises around program arrangements. Two of the partnerships examined do not trust that each has the other's interest in mind.

Communication is equally difficult for many CBTPs. Faculty who are not involved may not understand or value the CBTP, and thus may be unable or unwilling to help their students enter the program. Communication to students at many of the study sites is somewhat haphazard; as described earlier in this report, for the most part, students have to be already motivated to discover and enroll in the CBTP. Particularly in large schools with few guidance counselors, poor communication about the program may inhibit the participation of middle- and low-achieving students in the CBTP.

Without good collaboration and communication, the logistics of developing and implementing a coherent developmental curriculum can be daunting. Scheduling, in particular, can be troublesome, as is the case in Minnesota. The all-encompassing IB curriculum makes scheduling difficult and often promotes a feeling of constraint for students who want to take non-IB electives but also need to fulfill their IB requirements. Additionally, the school's block schedule sometimes interferes with teachers' attempts to prepare students for IB exams. Although not insurmountable, the scheduling needs of the program sometimes conflict with the scheduling needs of the school as a whole.

Curriculum development, even when not conducted within a partnership, is a complicated, time-consuming and difficult process. Creating multiple curricula, all aligned with one another and with high school and college curricula outside of the program, requires significant effort on the part of program instructors at both institutions.

Therefore, it is not surprising that none of the sites in our sample include all the curricular components and collaborative relationships encompassed by our model of promising programs. Each site does, however, incorporate key features of this model in an attempt to help all students prepare for and succeed in college course work.

Support Services

The data analysis also focused on the types of support services that are available to assist students in their movement through the curriculum and towards college courses and once

they are in those courses. Nonacademic as well as academic support services seem to be essential in helping students understand and meet the demands of a postsecondary environment. Such services are likely to be particularly important for students who have not been successful previously in school.

There is a great deal of variation in both the types and extent of services offered to students in the different programs. In general, services vary along two major dimensions: their sponsor, meaning whether they are offered by the high school, by the college, or through a collaboration; and their content, for example whether services provide academic support, general personal support, or specific college-preparatory activities, such as assistance with college applications or financial aid. Some services are difficult to categorize, as they have multiple goals.

Who Provides Services?

The high schools sponsoring the CBTPs offer support services typical to most high schools, such as college nights or college fairs, financial aid workshops, and academic advising, among others. Special academic support is available for students with learning disabilities. Aside from the size of the school influencing students' access to services such as counseling, we do not detect any significant differences across the schools in terms of the services offered to all students. The high schools by themselves do not offer services especially for students in the CBTP, except that the Minnesota high school has implemented advisory periods and IB students are clustered in their own advisories. In California, the high school is the CBTP, so many services, as described below, relate to students' dual enrollment.

All of the postsecondary partners offer a range of services (although as noted previously, the Minnesota IB program has no college partner), but students are limited in accessing them. Students in the Texas Tech-Prep program are not officially considered college students and so cannot use any college-based services. The Iowa Health Careers Academy students are considered students of the college and thus can take advantage of the services offered, but there was no evidence that they do so, likely because of the distance to the college and some lack of effort on the part of the program's staff to orient them to the college's facilities.

Only in California and New York do the students really make use of support services provided by the college. Students in the New York program may use the college's facilities and services, and the high school-based coordinator and instructors make efforts to bring the high school students to the college. At the California program, students who are enrolled in college courses have access to all of the college's facilities and services, and even high school students not taking college courses are generally welcomed by college services staff. Students acquire information at three different counseling centers on the college campus as well as at the high school counseling office. In addition, the colocation of the MCHS and the college means that program students can easily take advantage of the range of services offered. Even so, ensuring that the students know about the services and make use of them requires a focused effort. As a counselor at the California MCHS said:

> The challenge for me is to make sure we bring those services to our students because our students don't have the fortitude to go out and seek those services. That is one of my biggest challenges, to make sure I set up a system where we bring in presenters...to discuss services and tell the students what it is that they can do for them, and set up tours so the students know where to go.

It is significant that, in the California and New York programs, collaboration between secondary and postsecondary counseling staffs brings about the creation of activities especially for program students.

Each of the high schools in the study provides some support services to all of their students. Because the high schools are limited in the services they could offer, however, the additional supports provided by the CBTP appear to be important in helping students be successful in their college course work and future transition to college. For example, New York City High School has only one college counselor assisting 700 seniors with their college application, advisement, and paperwork needs. For the specialized college-level health careers curriculum taught in the Iowa program, the high school seems unable to provide much in the way of academic support. In Minnesota, academic support services such as structured study groups and review sessions are provided to those in the upper levels of the IB program who are preparing for IB testing. However, there is no focused support targeting those who might have been struggling in the beginning stages of the program. A counselor at that high school spoke of the need for better academic support:

> But he [referring to a teacher] said, the problem that he was facing with the IB and the AP was, the standards were there and there was no time for the prep. It was, they either had to jump through that hoop, they either make it or they don't. They either pass or fail... and so I think a lot of

> feeling and thoughts that I hear, is that we need something to prepare these kids better to handle these heavy-duty classes, and we need better safety nets to catch them.

The Texas program offers the most striking example of one possible result of a lack of structured and consistent college preparation services; a teacher in an IT program said:

> I notice some teachers that still tell these kids, 'Oh, you've got to go to a four-year school.' We're not into that. A couple of reasons, you know... just the statistics that tell us that less than five percent of the jobs where they require a four-year education, so why spend the money? Plus we know that college is not for all kids. I mean, bottom line is a lot of kids start and never finish their first semester, let alone the first year. Let alone they, you know, get a four-year degree. It's got to be what's right for them at their time, so, we try to—not steer them, 'cause it's got to be their choice. ...

Yet in contrast, teachers in other Tech-Prep concentrations, such as criminal justice and child development, said they do counsel students on the importance of college to different career paths. Still, some of the students interviewed in focus groups said that their teachers did not talk about college. Thus, students in this program are receiving different messages from their high school about college. More contact and familiarity with the program's college partner might provide students with more consistent information about the importance of preparing for college.

What Services Are Provided?

In terms of the content of the services available, students can get academic support and advising, participate in career exploration activities, and gather extensive information on and assistance with college application procedures. Again, some of these services have overlapping goals.

Academic support is often provided informally by program instructors, but in some cases there are formal academic support services, such as those described in Minnesota. In California, several structures are in place to support students enrolled in college classes, such as regular progress reports that are required from the college professors, and a weekly Friday class during which high school teachers give assistance to the students on their college course work. Informally, college professors assist high school students enrolled in their courses after class time and also refer them to the college's Learning Skills Center, a tutoring center.

Academic advising, for planning an academic program of study, is usually done with the program coordinators or regular high school counselors. In California, students are encouraged to meet with the college counselors; as the high school principal said:

> They're encouraged to take college classes... And we sit down with them: "Okay, have you taken poli sci?" "No." "Take that class, and it counts for government. What about working on your AA degree?" "Oh, I don't know. I didn't know anything about that." "Okay. Well, you should think about that, and then we're going to make you an appointment to go meet with the transfer counselor, and she's going to tell you what the benefits of that are, and then she's going to help you select some classes." So that's kind of what we do. We try to encourage as much as possible every 11th- and 12th- grader to have at least one class at the college; that's why they're here.

Several students in the IB program say they wished for better academic advisement, as they find planning their IB course of study to be quite complicated. In Texas, the high school counselors advise students on the Tech-Prep options, and The Global EDGE Tech Prep consortium staff visit the high school to explain to students the sequence of courses available at the college.

Career exploration is available in some of the programs. Students in the Iowa program have opportunities for structured career exploration in the health-care field, via a one-day event at a university hospital and multiple job shadowing experiences. These activities are coordinated by the college and a nonprofit intermediary partner. In California, all of the high school's homerooms receive an orientation to the college's career center, which offers career self-assessments, and information on internships and job openings. In Texas, the Early Childhood Education concentration in particular offers work-based learning experiences as part of the curriculum. Additionally, since many of the Tech-Prep teachers have industry experience, they are able to provide information to students about different career paths.

College preparation activities include exploring and visiting different colleges and learning about college applications and financial aid procedures. Students in California again have a rich array of options. For example, the college's transfer center organizes college visits; during one of the project's site visits a busload of college and MCHS students headed to University of California at Los Angeles (UCLA) for the day. The high school-based counselors bring in numerous college representatives to give presentations. The transfer center also provides a state-funded part-time individual who conducts regular workshops on the college financial aid process as well as individual assistance in that area. Both Iowa and

Texas Community College staff present information about their own programs and application procedures. Students in the other programs mostly have to make use of the regular high school-based services.

As discussed previously, one kind of college preparation that CBTPs potentially provide is knowledge of and a sense of comfort with the college environment. The sites did not engage in activities supporting this knowledge consistently, however. In New York City, high school students enrolled in college courses can use the college facilities; however, it is unclear the extent to which they do so. The high school-based instructors say they made efforts to take their classes to the campus, but sometimes cannot find the time to do so. As mentioned, students in Texas and Iowa are unlikely to visit the campus of the postsecondary partner. Again, because of the colocation of the MCHS and college campuses in California, students are likely gaining this type of preparation. As the assistant principal said,

> I think this is an absolutely outstanding program for students, and I would feel comfortable putting my child here because the students have an opportunity to network and engage in various learning environments with college professors. And so, in terms of being competitive, they're competitive not only in an academic sense, but they also have the social exposure from networking and taking classes with college students. They've already had the opportunity to work one on one, or hand in hand, with the professors to talk about their grades. In terms of college, the exposure is there now for the college environment.

Personal and social supports are also not as prevalent. We did not find any formal mentoring, although some programs had implemented this or similar strategies to improve students' self-esteem and self-confidence in the past. Organized group events that might build students' support for one another or celebrate students' accomplishments are also lacking, except at the New York City program. The Iowa program has just instituted a program completion and awards evening event.

Services that are the most unique and hard to categorize, meaning that they potentially provide academic and personal support, as well as college and career preparation, come from collaboration between the secondary and postsecondary institutions. In New York, the high school- and college-based program coordinators collaborate in a meaningful and regular way to create social, college-

Exhibit 6.

Observation of New York City Dual Enrollment Saturday Theater Workshop

On a Saturday in the spring of 2004, students from the Dual Enrollment program met at the college to have a discussion with a professor of English, which was followed by a trip to see The Producers on Broadway. This observation demonstrates the ways that support services can help familiarize students with the expectations of a college classroom.

> The professor asked the students to "think about why we laugh." He began to discuss the theories behind laughter and humor. He told that students that there are parts of The Producers that some people might find offensive, and so it is important to think about appropriate and inappropriate humor—what "can we laugh at and what shouldn't we laugh at."
>
> The professor asked the students for their opinions about what is and is not OK to laugh at. When he asked, "What shouldn't we laugh at?" one student replied, "Death," and another said, "Religious, ethnic, and racial groups." Another student said that we shouldn't laugh when people are being bullied, but then a girl replied that it kind of matters "how it's portrayed." A large number of students seemed to agree that religion and ethnicity are off limits, but then a boy said that this is OK, sometimes. He asked the class, 'Have you ever seen *Chappelle's Show*?' The teacher replied that this is a good point. "Is it OK to make fun of a racial group if you are part of that group?" And a boy replied, "I guess it depends on who's making the joke." The professor pointed out that Dave Chappelle makes fun of African-American culture, but he is African-American. The professor brought up the intent—perhaps the issue is whether jokes are meant to be funny or harmful. Throughout this conversation, the students were very attentive and quiet. As the discussion progressed, more and more students were volunteering answers and participating.
>
> Throughout this discussion students honed their speaking, listening, and critical thinking skills, which are skills necessary for success in college courses.

based activities that also support the students' academic learning. Many of the activities are targeted towards the students in the entry levels of the program, to try to improve their skills and to encourage their continued participation. These activities include cultural events at the college as well as field trips to other institutions in New York City. For example, to complement a social studies curricular unit on capital punishment, students attended an all-day symposium at the college. A representative from Amnesty International spoke, and the students participated in a discussion afterwards.

In California, collaboration is more haphazard and based on individually developed relationships, but it does occur. Collaboration between high school and college counseling staffs resulted in the creation of an industry-themed, college credit seminar that takes place weekly in the Career Center. A variety of speakers presents a curriculum that covers mortgage banking, real estate appraisal, accounting, and information technology. Speakers and students dress in business attire. The program is closely aligned with a real estate certification program; if students continue on to the certification program, the sponsoring company will cover the cost of the state real estate examination. Certainly some of these activities are aimed at increasing students' professional skills, which could contribute to personal self-esteem or self-confidence.

Promising Practices

From this brief description and analysis of the support services offered by the various programs, one can see the added value that collaboration contributes. As with curriculum, when high school and college-based instructors and coordinators come together to determine students' needs, and how to support students' transition to college, the programs appear to be more cohesive and comprehensive. Thus, ideally students in CBTPs would have access to both high school- and college-sponsored services. In addition to the services that are already provided to all students of those institutions, customized services should be developed collaboratively. As pointed out above, New York City and California provide examples of this collaboration.

Customization of services seems particularly important. The range of possible support services is vast, and programs cannot be expected to offer a full range. Instead, CBTPs should assess their goals and the needs of their students, and tailor the services they provide to best help students attain the goals of the program. They should provide an array of services to their students, but should work to keep their services focused on students' needs and goals.

Many of the sites do just this. In Iowa, support activities are focused on career exploration, in keeping with the occupational focus of the Health Careers Academy. In New York City, ELLs are given the opportunity to practice their language skills during discussions and lectures, while other students are given the opportunity to learn about college through visits to New York City Community College's campus. Sites also should work with individual students to ensure that, when a range of services is available, students make use of the services most appropriate for them.

In addition, the data demonstrate the importance of giving students information about support services and setting aside time for students to learn about and to access the services. If students do not know about support services, they cannot take advantage of them. Allotting time within the regular school day, such as is being done in the MCHS homeroom periods, or in the Minnesota IB students' advisory periods, helps to ensure that all students are given consistent information on available support services.

Barriers to Implementation

A significant barrier to providing students with an array of services is that the status of the program students is different from that of regularly matriculated college students. When program students do not have official status as college students, and where the program does not bring students to the college campus, students' access to services is generally limited to those available at their high schools. This barrier may be magnified for students enrolled in high school or developmental courses, who may need the most support but are the least likely to be considered part of the college community.

When CBTP students do have the right to make use of the college's services, there are still often barriers to them doing so, as was described in Iowa. Time may be lacking within a program's curriculum to provide orientation to services, and geographic distance may make access difficult for students.

Data Collection and Perceived Benefits

Drawing conclusions about the effectiveness of CBTPs in helping students enter and succeed in college is reliant on the presence of outcomes data. Ultimately, we are interested in knowing whether students who have participated in CBTPs are more likely to enroll in or persist in college than their peers who have not participated, or if former CBTP participants complete college in higher numbers

or at a faster rate than nonparticipants. The present study was not designed to measure the effectiveness of the programs, but it did explore data collection at each site and the barriers that sites face in collecting these data.

Although many respondents to the study indicated that they believe in the value of outcomes data and profess the desire to collect and use them, most sites do not have systematic data collection procedures. Most of the data available at the sites are for short-term outcomes, such as program completion rates. In California, for example, the high school collects data on student progress toward high school graduation, including the number of college credits earned by students that also meet high school graduation requirements, as well as students' postgraduation plans. California Community College does not collect any data specifically pertaining to students in the MCHS.

Similarly, Minnesota International Baccalaureate High School maintains data on student participation in IB courses and their success on IB examinations, but not on college matriculation or persistence, or on students' ability to translate their IB exam scores into college credit. In Texas, the high school keeps data on how many students take a Tech-Prep course; the Consortium collects data on students' eligibility for articulated credit; and the college keeps track of student use of Tech-Prep credit at Texas Community College. These three sites do not follow students beyond their first year in college.

Both Iowa Community College and New York City Community College have longer-term outcomes data in addition to short-term program completion data. Iowa Community College has data on former program students currently enrolled at the college and thus the college is able to track students' progress toward graduation as well as their major. In New York City, the university system of which the college is a part has similar information for students who matriculated anywhere in the CUNY system. At both of these colleges, however, the data are for students who participated in any CBTP in high school, and are not disaggregated by the specific high schools in the study—Rural High School or New York City High School.

Overall, then, it appears that sites' data collection efforts are focused on demographics, enrollment data, or short-term outcomes data, and rarely on long-term outcomes. And, there are no data for students who do not matriculate within the CBTP partnership. Moreover, data pertinent to the study and requested by the research team were difficult for the sites to generate. Though the information is available, the sites found it challenging to gather and report the data in a way that is of interest to the research team. Much of the data took months for the sites to compile, and much was generated specifically for this study, at the request of the researchers, rather than on a regular basis.

Promising Practices

Given the lack of data available at the case study sites, it is difficult to determine promising data collection practices for CBTPs. It does appear that data collection is facilitated when the postsecondary partner is involved in the process, as colleges often have dedicated institutional research staff skilled in data collection and analysis techniques. In Iowa and New York, the postsecondary partners at both sites collect and use long-term outcomes data.

In Iowa, data collection also is facilitated by the college's decision to register dual enrollment students (including those in the Health Careers Academy) in the same way as regularly matriculated students. Students are given a code indicating their enrollment in the program, and their transcript information can be accessed and used for outcomes analyses as is any other college student's. In this way, the students can be easily identified and followed upon their matriculation into the college.

Barriers to Data Collection

Why do the case study sites have such difficulty collecting and generating data, particularly on the long-term outcomes of their students? Two primary themes highlighting the challenges facing sites emerge from the data. First, even in strong partnerships, there is little data sharing or collaboration on data gathering between partners. Second, sites have serious capacity problems, lacking staff time and knowledge to collect and use data effectively.

Lack of Data Sharing. At all five sites, data collection efforts are conducted by partners in isolation from one another. Partners are uncertain what, exactly, the other institution collects. High schools assume that colleges have long-term outcomes data when the college actually does not, for example. Partners often do not share their data with each other. This sometimes results in a duplication of effort, as seen in Iowa, where both the high school and the college collect data on student completion of the program.

Moreover, a lack of communication regarding outcomes data collection—and particularly the definition of those outcomes sought—means that, in some cases, the same piece of data might mean different things to different partners. Such is the case in Texas, where the college, consortium,

and high school use different definitions for the same variable. For example, the high school considers a "Tech-Prep student" to be any student enrolled in a Tech-Prep course, while the consortium counts only those who registered to receive articulated credit. The college uses an even more stringent definition, considering only students who apply for and receive articulated credit to be "Tech-Prep students." In this site, even determining program enrollment is complicated.

The fragmentation of data collection efforts makes longitudinal analyses of student outcomes difficult, even in sites where outcomes data exist. Fragmentation also means that student achievement cannot be followed over time, because the information gathered at the high school is not given to the college for follow-up. Without access to students' high school records, colleges cannot control for prior academic experiences in determining the influence of program participation on student success in college. In Iowa, for example, the college has preliminary data indicating that Health Careers Academy students matriculating into the college have stronger academic skills than other first-time college freshmen. However, without access to high school achievement data, the college cannot demonstrate that this outcome is due to program participation, rather than other factors.

To some extent, the lack of data sharing stems from programs' concerns over student confidentiality. Program staff frequently said that they were concerned that sharing data with other institutions would violate their students' privacy. They were particularly concerned about data that were linked to individual students. Thus, programs are reluctant to share data in ways that include student identifiers.

When programs do not collect data with individual student identifiers, however, long-term follow-up on student outcomes is not possible. This is true whether the reason for the lack of identifiers is because of privacy concerns, or some other reason. In California, for example, the college does not identify MCHS students enrolled in college credit courses. It is therefore unable to determine if any MCHS students matriculate into the college, because they have no way of differentiating former MCHS students from others in their data system.

Overall, the lack of coordination means that pieces of data are collected in isolation from one another. Data can be used to generate a snapshot of programs at a given moment in time, but not to tell a story of student achievement or matriculation and persistence in college. There are not enough coherent data to explore long-term outcomes, particularly in a rigorous manner.

Lack of Capacity. Sites also lack the capacity to collect and use data. In many sites, data collection is peripheral to staff's stated duties. Particularly at the high schools, collecting data on the CBTP is not a focus of their efforts. High school staff primarily concentrate on day-to-day operations and collecting data required for state and federal reports. In Minnesota, for example, the school did not focus on the IB participation rates of students from various racial and ethnic backgrounds until it included broadening participation in IB in its state accountability goals. With this goal made explicit, the school is now attuned to the data regarding participation rates on the part of students from various backgrounds.

There are similar constraints at the postsecondary level. Both the Iowa and New York sites have college-based institutional research offices and are committed to using data effectively. But these offices have a myriad of other reports and data analyses that they are required to complete, and they have little time to analyze CBTP outcomes data. In Iowa the director of institutional research said, "I can't think of anything I couldn't tell you, if I had the time to do it." He makes clear, however, that such time is difficult to come by, as other priorities come ahead of exploring the outcomes of the CBTP.

In addition to time, partnerships faced other capacity issues. The New York City college-based coordinator indicated that she does not have the physical space to hold onto students' paper records for more than two years. And, in a number of sites, staff are uncertain how to collect the data they most desired—alumni outcomes. Iowa has attempted to survey alumni of both its Health Careers Academy programs and the college generally, and found that their response rates were very low. Iowa is uncertain how to guarantee that any efforts at following up with alumni would be fruitful.

Similarly, programs are uncertain how to gather data on alumni who do not matriculate into the partnering postsecondary institution. In Texas, for example, the consortium coordinator said that she has to use a "hunt and peck" strategy to find alumni, because they often transfer out of Texas Community College prior to earning an associate degree.

Data collection, particularly for long-term outcomes, does not seem to be a priority for most of the sites in our study. Though they understand the importance of collecting and using data, constraints on their capacity and competing priorities

inhibit their ability to engage in data-gathering efforts. If long-term program outcomes are going to be explored, funding and staff time need to be dedicated to these efforts. Without increased capacity, as well as increased willingness to engage in the process, it is unlikely that sites will improve the outcomes data available.

Perceived Benefits to Students

Although this study did not systematically explore student outcomes, it did investigate what program practitioners and students believe to be the benefits of participation. Across the case study sites, respondents indicate that there are three primary benefits to students: the opportunity to earn free college credit, gaining "a taste" of college, and students' increased confidence in their academic abilities. In addition, many teachers mention that they benefit from their involvement in the program, which we will briefly discuss.

College Credit. Study participants believe that the opportunity to earn free college credit benefits students, particularly those from disadvantaged economic backgrounds, by making a postsecondary degree less expensive and potentially shortening the time it would take to earn a degree. A New York City instructor explains, "Six hundred kids in the course of a year are going to get college credit and it's not going to cost them a penny." In Iowa, students earn nearly a full semester's worth of credit at no cost, in addition to having the opportunity to earn a credential that enables them to gain skilled employment. In Texas, where students often do not receive credit for their Tech-Prep courses, the chance to earn the credit is still seen as an important benefit by both teachers and students. This benefit presumably encourages students to matriculate in college by making it seem more affordable.

At California MCHS, students can earn enough college credit to earn an associate degree at no cost. This credit also positions the students well within the state's university system, potentially helping them transfer to a four-year college or university. According to the high school counselor,

> That's the goal... to transfer to a four-year and, you know, it's a tremendous advantage, not only financially, because they don't have to pay for the first two years, and it's free, but then it's much easier to get into a UCLA-type of school as a transfer student if you did well on your associate degree.

In Minnesota, earning college credit is dependent on passing an exam and having a university recognize the exam scores. Moreover, some of the staff feel that the credit is less important than the curricular experiences offered by the IB program. Yet, for the students, the opportunity to earn free credit is a very real benefit. One student said that she decided to pursue a full IB diploma mainly because she thinks it might help her graduate from college more quickly.

In fact, students across the sites seem to view free college credit as a key reason for participating in CBTPs, even if they are not assured of being able to apply their credit toward a college degree. As the college-based New York City College Now coordinator noted, credit seems to serve as a "carrot" for students, encouraging them to participate in the program. It is much harder to entice students to enroll in CBTP activities that do not bear college credit than in those that do.

A Taste of College. Study participants additionally believe CBTPs give students the opportunity to get a taste of college. Students in CBTPs are, in essence, able to practice the academic and social aspects of being in college, thereby potentially becoming prepared for actual college matriculation. This benefit is most clear in California, where students are on a college campus and attend class with other college students. California MCHS students also experience college by learning to network with college instructors and students and to balance freedom with responsibility.

Though the MCHS gives the most easily recognizable example of students experiencing what it is like to be a college student, participants at other sites note that their students receive this benefit from their CBTP participation, as well. In Iowa, students take a semester's worth of college classes over the course of a year on top of their regular high school courses. One of their college courses is a self-paced medical terminology course that requires them to study independently. The Iowa nursing instructor explained that the heavy workload prepares them for the academic demands of college and "...that gives them a taste of, you are responsible in college. You know, you read a chapter a day and then you test..." The information technology strand at Texas Tech-Prep makes similar demands on those students.

In New York City, students in the Learner's Academy attend class on a college campus. Students indicated that they feel like they are "a real college student" and that they learn about college from spending time there. "You know how the teachers will deal with you. You know, they're different than the high school." New York City students who are not in the Learner's Academy, but are in other College Now courses also are given a taste of college through trips to the campus and the opportunity to obtain a college identification (ID) card. A high school-based instructor said that the

visits are helpful to the students because "They can see the college in action... they get to see a whole different atmosphere to high school." Another added, "And they get to act like little adults. And they do. You know, you see them and they really do act like little college kids. They're so proud when they get their college ID and say, look at me, I'm a college student."

The support services offered by some of the sites also make the CBTPs safe places for students to try their hand at a college course, since they may be more likely to be successful than if they enrolled in college on their own. Particularly for middle- and low-achieving students, knowing that there are support services to help them be successful may encourage them to enroll in CBTPs when, without those services, they may have chosen not to do so.

Additionally, in Iowa and Texas, students are able to explore a career path without being penalized if they changed their mind. Iowa program staff note that students sometimes discover that they do not want to pursue a career in health care, and that it is better the students realize this in high school, while taking free college courses, than after they have paid for a number of semesters of college course work. Texas Tech-Prep faculty, particularly those in the Child Development and Criminal Justice strands, agree. And the students themselves feel that the opportunity for career exploration is invaluable; as one said:

> ...if you want to become a teacher, and you do an application, you don't get to get into a class until about your third or fourth year. You've already paid for so much, well, say you get into a classroom and you really don't like kids, you can't—most of us can't just go back and say, 'Oh, I'm just going to start over.'

Increased Confidence. According to students, a third benefit is the increased confidence gained through their participation in CBTPs. Although the sites encourage such confidence in a variety of ways, participants believe that students leave their CBTP with increased belief in their ability to be successful in the future. Some of the increased student confidence, according to study participants, is a direct result of their experiences learning about college, as described above. Because college is familiar to them, students realize that they can be successful in that environment.

Students' confidence is also increased by student success in college course work. Study participants believe that once students discover that they can achieve in one college course, they are more likely to believe that, they can succeed in college generally. Explained a college dean in Texas, "[The students] realize that...if the college is willing to give me credit for it, I'm probably doing college level, and that again helps them to understand that yes, I do have that ability; I can do it." In discussing a student who had difficulty in her class, a New York City instructor agreed. "But he did all his work. And it was a challenge for him. And he wrote a letter at the end to me that said—it was just really simple. It said, 'I never really thought I could go to college, but now I see I can!'" Thus, success in college courses is believed to breed the confidence that students can use to motivate themselves in future academic pursuits.

The programs help students gain confidence in other ways, too. The clinical experiences in Iowa are an important way to help students feel more secure in their abilities. The director of secondary programs said,

> ...when I'm thinking about the Health Academy, I see these students come in for the orientation in the spring, and they're shy and timid and they don't know what they're doing. And then they're watching the kids who are in the program, who look like they've been doing this for years. Well, they've only been doing it for about eight months. And yet, they grow so much in their self-confidence and come to sense who they are and what they can do.

Likewise, the sense of community students find in the California MCHS, New York Learner's Academy, Minnesota IB, and the Iowa Health Careers Academy helps students feel comfortable with their academic abilities and goals. Explained a Learner's Academy instructor, "The kids protect each other, look out for each other... And they're helping each other. They're motivating each other, which is nice..." And the MCHS principal says, "I think kids feel like they can be academic here, and that's okay; whereas, in a lot of schools... you can't carry books. You can't act like you're smart. We don't have that problem here ...."

Perceived Benefits to Teachers

Many of the CBTP teachers, in particular high school-based teachers who are teaching college-level courses, speak of benefits to themselves from their involvement in the program. Teachers say that teaching higher-level course material to motivated students is stimulating and enriching to themselves. In New York, teachers said that teaching in the program is "fun" and that the smaller class sizes allow them to really get to know their students. Teachers in that program are also paid for their involvement, because it is an after-school program, and so there are many teachers vying to participate.

Teachers also spoke of benefiting professionally from the

training and interaction with postsecondary faculty. One Minnesota IB teacher said:

> The training that I've attended has been excellent kind of training. They give you curriculum. They give you lessons. They give you suggestions. So I've benefited immensely from the training sessions. And they treat you well, too, which is nice. I mean, they treat you like professionals, which is very nice. And, so, I hope every teacher has the opportunity at some point to get some type of that training, because it's really been beneficial.

In the New York City and Texas programs, where the high school-based instructors meet regularly with their college counterparts, high school teachers speak of this interaction as being important and useful to them in their teaching.

Recommendations for Policymakers, Practitioners, and Researchers

This report has presented data from five diverse sites and highlighted promising program features that the data suggest should be included in CBTPs if they are to meet the needs of middle- and low-achieving students. Additionally, various challenges and barriers faced by programs as they attempt to implement these features were described. This final section presents recommendations based on the data to policymakers, practitioners, and researchers.

For Policymakers and Practitioners

Lessons learned from the fieldwork can assist policymakers and practitioners in their continuing efforts to encourage the development of CBTPs. Three overarching themes arose from the data: access, collaboration, and the need for data collection.

Encourage Broad Access

We have described several ways in which access to CBTPs may be formally, or informally, limited, even though staff members in all the case study sites make significant attempts to provide students with information about the program. In order to encourage broad access, programs should:

- Develop multiple ways to ensure that all students—regardless of academic background and level of motivation—learn about the CBTP.

This entails giving all students information about the program early enough in their academic careers to allow them to plan for program participation. It also means that this information should be shared with students frequently, so that those with less access to information sources are still likely to learn about and enroll in the CBTP. Just providing the information is not sufficient; students must also be made aware of the benefits to their participation, such as college preparation and credit. Involving parents, all teachers in the school, guidance counselors, and other school support staff in recruitment efforts may help broaden the spread of program information to all students.

- Develop a program culture that is supportive of and encourages students from different backgrounds and academic levels to participate.

Ensuring access is not simply a matter of disseminating information. In a number of sites, study participants indicated that students also need to feel comfortable in the program. They need to see other students like themselves participating in CBTP activities and to feel that their academic needs and concerns are being met. Programs in the study are beginning to address this explicitly, by seeking to change the reputation of their program, targeting activities at underrepresented students, and using support services to create a CBTP culture that feels comfortable to students not previously or frequently involved.

- Structure the program and the curriculum with an eye towards broad access.

A developmental sequence of courses can help to maintain program access for all students, particularly middle- and low-achieving students who need opportunities to build their skills before attempting college credit courses. Curricular pathways with multiple access points ensure that students at different levels can enter the program. A program in which course work is part of the regular school schedule likely helps more students participate, as opposed to an after-school program. Programs also should be attentive to encouraging access for special education and ELL students, who may have additional needs beyond the opportunities available through the program's developmental pathway.

Policymakers can support practitioners in these practices. States can provide incentives for programs that enroll middle- and low-achieving students. The programs studied were located in states that did not strongly restrict student access, and these programs were attuned to broad access. Despite these factors, it did not seem that the programs were reaching their target population—disengaged, underachieving students, who might not view college as a realistic option.

Create Strong Collaborative Relationships

Throughout the report, we have discussed the importance of collaboration. Many of the promising practices identified rely on collaboration among high school and college staff, as well as

deeper institutional collaboration. However, as has also been noted throughout this report, collaboration is a difficult process and one with which some programs struggle. Programs and policymakers should:

- Facilitate collaboration by clearly establishing the roles and benefits for each institution in the partnership.

Collaboration appears to be most successful when all partners perceive that they are receiving benefits from the partnership, or when particular goals drive strong commitment at the top levels of leadership. In some cases, one or both partners participate half-heartedly, doubtful as to what added value the other partner is contributing. It does not seem to matter whether goals are self-interested or altruistic, as long as they lend themselves to a commitment to sustaining the program.

Collaboration occurs in different ways and among different levels of individuals. Collaboration can be formal or informal and can occur between the leaders of institutions, or between the staff or instructors. Thus, in one site, the formal institutional-level collaboration seems to be falling apart, while, at the same time, counselors of the partnering institutions are working closely together to share and integrate their services. At another site, collaboration is strong between the partnering program administrators, uneven between the instructors, and nonexistent between the top levels of leadership. In no program is collaboration consistently strong and fruitful across all levels of the partnership.

- Support broader integration between the secondary and postsecondary sectors.

The word "collaboration" does not seem to fully describe the type of institutional relationship that CBTPs require. CBTPs promote deeper institutional changes, such as high schools and colleges overcoming their structural differences to integrate their goals, practices, and services. Such widespread collaboration, and its potential impact, mirrors the goals of the larger K-16 movement, in which high schools and colleges are encouraged to work together to create a seamless education system.

Policymakers have a strong role to play here. They can compel the two institutional sectors to rethink and align their standards, curriculum, and assessment practices. Aligning high school graduation requirements with college entrance requirements is an important first step. Articulation of high school with college course work would also help students transitioning to college know that they are prepared. Policymakers can do a great deal in supporting the difficult task of integrating and streamlining secondary and postsecondary education.

- Simplify the credit earning and credit transfer process.

Finally, CBTPs are a type of collaboration that is intended to yield college credit for students. Yet credit earning in some of the study sites is quite complicated, and it is unclear the extent to which students retain their credits as they matriculate to different postsecondary institutions. Policymakers should take steps to ensure that earning credits through CBTP participation is not an onerous process and that the credits are more easily transferable. It is clear that transcripted credit, such as that earned in the California and Iowa programs, is preferable to credit-in-escrow, such as that in the Texas Tech-Prep program. Common course numbering across state college systems also would help students transfer and keep their credits.

Policymakers also should support dual credit programs, in which students receive high school and college credit for their program course work, as opposed to receiving one type of credit or the other. In addition to simplifying participation for students, dual credit also encourages institutions to work together to align curricula.

Work With Researchers to Collect Outcomes Data

It would be useful to collect additional descriptive information on CBTPs, such as the number of college credits high school students are earning. Some states and programs have begun to report such descriptive data (See Barnett, Gardner, and Bragg, 2004). Ultimately it is important to know whether CBTP participants are more likely to enter and complete college than nonparticipants.

Researchers' ability to evaluate CBTPs, however, is hampered by the limited collection of outcomes data, particularly long-term data. In order to provide information on program effectiveness to policymakers and practitioners, it is imperative to:

- Support the gathering of student-level data that can be used for outcomes analyses.

Policymakers should support outcomes analyses that begin with students' performance prior to program participation, include comparison groups, and follow students through college matriculation and graduation. To do this, high schools should compile data on CBTP students' grade point averages, standardized test scores, extent of program participation, on-time graduation from high school, and post-graduation planning. Colleges should compile data on students' timely matriculation into postsecondary education, use of credit earned through the CBTP, persistence in college, and on-time completion of a postsecondary credential.

These data should be linked in order to follow students from high school to college. This will require secondary and postsecondary sectors to share data and use common student identifiers. High schools and colleges may need financial support as well as governmental urging to carry this out.

Researchers should help program administrators collect these data in forms that lend themselves to rigorous analyses and use the data for internal evaluations and improvement efforts. Such efforts are, in essence, an additional form of CBTP collaboration—that between practitioner and researcher. And, like the collaborations discussed earlier in this report, these efforts are likely to be difficult to engage in, at least at first. However, they seem the most likely way to ensure that data are available with which to conduct long-term explorations of the influence CBTPs have on student matriculation and persistence in college.

For Researchers

A primary goal of this project was to provide knowledge of CBTPs on which future research may be based. Describing program features in detail, as done in the previous sections, was the first step in achieving this goal. The second step was to create a conceptual model that suggests the ways that these program features may work together in order to promote the success of middle- and low-achieving students as they make the transition from secondary to postsecondary education. This model is intended to help future researchers develop studies evaluating the effectiveness of CBTPs and their various program components.

Prior to conducting the fieldwork, the researchers developed a hypothesized model. The model relied on previous research on CBTPs and secondary-to-postsecondary transitions indicating that rigorous academics in high school, as well as social preparation for college, may both help students succeed in college (See Adelman, 1999; Sax, Keup, Gilmartin, Stolzenberg, and Harper, 2002; Tinto 1987, 1997). The case study data were used to confirm the model. The data also helped the researchers develop a better understanding of the components included in the model and the ways in which these components interact. Ultimately, the case-study research led to the creation of an evidence-based conceptual model outlining the ways in which CBTPs may help students enter and succeed in college. See exhibit 7 for a visual representation of the revised model.

The model indicates that CBTPs give students an academic base for college success, confidence in their ability to be successful in college, and the opportunity to learn about the social and procedural skills required of college students.

The multiple components found in CBTPs play important but distinct roles in preparing students for college access and success. Program components include high school courses, developmental courses, college credit courses, and support services. The relationship among these components, as illustrated in the model, is complex. Program components meet the needs of students at various—and multiple—points in their academic careers, an aspect of CBTPs that is particularly important for meeting the needs of middle- and low-achieving students.

Laying the foundation for college-level study takes multiple forms. As outlined in the section of this report on curriculum, students seem to develop an academic foundation in high school courses that are aligned with college curriculum, or through specially designed developmental courses. These various preparatory activities are illustrated separately in the model.

The model also illustrates that most of the presumed impacts from CBTPs occur prior to students' enrollment in college credit courses. Although college courses are the capstone experiences of CBTPs, program benefits accrue over time. Students gain academic skills; feelings of success, confidence, and motivation; and social and procedural skills at multiple points in their CBTP experiences. These gains seem to influence their future program experiences as well as ultimate program outcomes.

In exhibit 7, the program elements included in CBTPs are shaded in grey and the desired program outcomes are to the far right. Heavy arrows indicate student movement through the program elements. They illustrate that students can move from high school course work through developmental course work to college classes, college matriculation, and college persistence. The multiple arrows leading to and from program elements indicate that students may traverse these program components in a variety of ways given their academic needs.

The clear boxes indicate the intermediate outcomes of CBTP participation, which are also the mechanisms by which student success in college might be promoted. Program features lead to these intermediate outcomes but these outcomes facilitate student participation in future program features, as well. In other words, students develop academic skills and motivation through developmental courses. Increased skill and motivation help students transition into and be successful in college

course work which, in turn, promotes more academic and motivational growth.

The elongated box along the bottom of the model illustrates the support services element of a CBTP. Supporting students prior to their enrollment in college courses may help motivate and prepare them for college credit courses. Supporting students while they are in college courses may help them be successful in those courses and, in turn, may further motivate them to matriculate to postsecondary education. The double-headed arrows linking support services to developmental and college course work indicates the symbiotic relationship between these program elements. Support services help students succeed in their courses, but their courses also help make support services—such as workplace experiences or special trips and workshops—more meaningful to students.

In addition, support services lead to intermediate outcomes of their own. They increase students' understanding of the social and procedural expectations of college by giving students a taste of college.

Ultimately, the model hypothesizes that student participation in college course work and support services, with the attendant growth in academic skills, knowledge of the social aspects of college, and motivation will lead students to matriculate into postsecondary education. Students will be likely to persist in college once there because of their strong skills. Of course, concise measurement of program outcomes and impacts is needed. This model, and the support for it that we find from our qualitative data, should assist others in designing future studies of CBTPs.

Suggestions for Future Research

Research is needed to test the conceptual model posed here and to explore the impact of CBTP participation on student matriculation and persistence in postsecondary education. In this final section, future direction for this research is offered.

- Confirm the relationship between program features and intermediate outcomes.

The conceptual model in exhibit 7 hypothesized that participation in the various elements of CBTPs have outcomes of their own. For example, participation in developmental course work is presumed to increase students' academic skills, participation in support services should increase students' knowledge of college, and participation in either or both of these components should increase student motivation to enroll in college credit classes. These hypotheses, and the others set forth in the model, need to be rigorously tested.

It also would be interesting to know if some program components have a greater influence on intermediate outcomes than do other components. Do developmental courses have a different impact on student motivation than do support services? Are CBTPs truly dependent on the interaction of multiple program components, or might some components be more necessary than others?

Answering such questions may include a variety of research methodologies. Programs may compare the academic achievement of CBTP participants with nonparticipants, or survey students regarding their college aspirations in order to detect differences in students before, during, and after their participation in various CBTP components. In order to understand student use of curricular pathways, programs may track students over the course of their high school careers to examine their trajectory through the CBTP.

Regardless, researchers should pay close attention to preexisting differences among CBTP students and their peers not participating in the program, as well as to any other factors that may be responsible for positive outcomes. The study's qualitative data indicate that there may be some preexisting differences among these two groups of students, particularly in terms of motivation and college aspirations. Post programoutcomes may reflect these differences, rather than any program-related change. Similarly, at a number of the case study sites, the small size of the program or the fact that students said they felt special because they were in the program—rather than the ability to earn college credit—was the most salient feature to students.

- Confirm the long-term outcomes of CBTPs.

It is still unknown whether CBTPs actually achieve their goal of helping students enter and succeed in college. This question should be a key element of any future research agenda on CBTPs. Is it appropriate to assume that participation in a CBTP will promote student attainment of a postsecondary degree? Long-term outcomes analysis is clearly needed to confirm this fundamental hypothesis.

Researchers should undertake outcomes research exploring student educational attainment after their participation in CBTPs. Do students earn college credit and if so, are they able to apply it toward a college degree? What is the average length of time to graduation for students who were in CBTPs, and is it shorter than for their peers?

As with the intermediate outcomes discussed above, studies of long-term outcomes

should be rigorous and include comparisons between students who were in CBTPs and their peers who were not and controls for prior academic achievement. Ideally, these studies might follow a cohort of students from the beginning of high school through college graduation, exploring differences between CBTP and non-CBTP students at various points in their educational careers. They also should include the outcomes of all CBTP students, whether those students attend the programs' postsecondary partner or a different college.

The findings from the Accelerating Student Success Through Credit-Based Transition Programs study lend credence to the excitement many policymakers and educators hold for CBTPs. CBTPs are ambitious—both in their expectation of high levels of student achievement as well as in their structural characteristics. The programs have the potential to help a wide range of students, not only the most academically advanced, but also the middle- to low-achieving students, become prepared for postsecondary education. Though long-term outcomes research is needed to confirm the college-going behaviors of students in CBTPs, the findings presented here indicate that it is plausible that CBTP participation has a positive influence on students.

References

Adelman, C. 1999. *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment.* Washington, DC.: U.S. Department of Education, Office of Educational Research and Improvement.

American Association of State Colleges and Universities (AASCU). 2002. "The open Door...Assessing the promise and problems of dual enrollment." Washington, DC: AASCU State Policy Briefing 1 (1).

Bailey, T., and Karp, M. 2003. *Promoting college access and success: A review of dual credit and other high school/college transition programs.* Report prepared for the Office of Vocational and Adult Education, U.S. Department of Education. Community College Research Center, Teachers College. Columbia University. New York, N.Y.

Exhibit 4.

Sample Pathway for a College Now Student Beginning in the Learner's Academy. [a]

Grade Level	College Now Course	Sequence Rationale
10th grade	Learner's Academy - Global Studies	Identified by the school as an ELL, the student is recruited by the program's high school coordinator and enrolls in the Learner's Academy. This full-year course gives the student high school elective credit and prepares him or her for the state's Regents exam in Global Studies.
11th grade	Learner's Academy - English/Language Arts	The student continues in the Learner's Academy. The second year focuses on improving reading and writing skills in preparation for the state's Regents exam in English/Language Arts. It also gives him or her high school elective credit.
12th grade - fall	English 99 (Basic Writing)	Based on his or her Regent's exam scores, the student enters English 99, a developmental writing course, in order to continue to strengthen his or her writing skills. As part of the course the student completes the Gateway exit exam, which assesses his or her readiness for college credit courses. The student receives high school elective credit.
12th grade - spring	Oral Communications	Based on the student's performance in English 99 and on the Gateway exit exam, the student is recommended for enrollment in Oral Communications. This is a college course that provides the student with 3 elective college credits.

[a] The Learner's Academy is a two-year sequence of courses for ELL students. In addition to preparing for college-level courses. Learner's Academy students can participate in a variety of enrichment activities.

Lords, E. 2000. "New efforts at community colleges focus on underachieving teens." *The Chronicle of Higher Education*. June 30, 2000, p. A45.

National Commission on the High School Senior Year. 2001. *Raising our sights: No high school senior left behind.* Princeton, N.J.: The Woodrow Wilson National Fellowship Foundation.

Sax, L., Keup, J. R., Gilmartin, S. K., Stolzenberg, E. B., and Harper, C. 2002. *Findings from the 2002 administration of your first college year (YFCY)*: National aggregates. Los Angeles, CA.: Higher Education Research Institute, University of California, Los Angeles.

Tinto, V. 1997. "Classrooms as communities: Exploring the educational character of student persistence." *The Journal of Higher Education, 68*(6): 599-623.

Tinto, V. 1987. *Leaving college: Rethinking the causes and cures of student attrition.* Chicago, IL.: The University of Chicago Press.

Waits, T., Setzer, J., Carl, and Lewis, L. 2005. *Dual credit and exam-based courses in U.S. public high schools: 2002-2003* (NCES 2005-009). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

This was reprinted from: U.S. Department of Education, Office of Vocational and Adult Education. Pathways to College: Access and Success, Washington, D.C., 2005. The report is available in its entirety at: www.ed.gov/about/offices/list/ovae/pi/cclo/cbtrans/index.html.

Endnotes

1 The reports from these two activities are available on the Accelerating Student Success Through Credit-Based Transition Programs project's Web site at: www.ed.gov/about/offices/list/ovae/pi/cclo/cbtrans/index.html. Reports can also be accessed at http://ccrc.tc.columbia.edu.

2 See the methods section in the Appendix for details on site selection and site visits.

3 Dual enrollment is used throughout this report to refer to programs in which students are simultaneously enrolled in high school and college courses. In some cases, students receive either high school credit or college credit, but not both. In other cases, students receive high school and college credit, an arrangement referred to as "dual credit."

4 For more information on each program type, and further detail on each site, please see the program fact sheets, one-page site briefs, and site case reports, which are available on the Accelerating Student Success Through Credit-Based Transition Programs study Web page at: www.ed.gov/about/offices/list/ovae/pi/cclo/cbtrans/index.html.

Exhibit 5.

Sample Pathway for a College Now Student Beginning in a Gateway Course.

Grade Level	College Now Course	Sequence Rationale
11th grade - fall	Literacy and Propaganda	The student is recruited by program teachers. Based on his or her previous academic performance, the high school-based coordinator advises the student to enroll in a Gateway course, which focuses on strengthening literacy skills. The student earns 3 college elective credits.
11th grade - spring	Critical Thinking	Although the student increased his or her skills, the student's scores on the Gateway exit exam require the student to take another Gateway course to further strengthen his or her reading and writing. Her or she enrolls in Critical Thinking, earning another 3 college elective credits. This semester, his or her skills are strengthened enough that he or she scores above a 75 on the English Regents exam.
12th grade - fall	Introduction to Sociology	The student enrolls in Introduction to Sociology, a general education college course. He or she receives 3 college credits that are easily transferable.
12th grade - spring	English 101	The student enrolls in English 101, another general education college course. He or she receives 3 additional college credits that are easily transferable.

5 Tech-Prep progrmas are supported at the federal level by the Carl D. Perkins Vocational and Technical Education Act of 1998. For more information on the legislation, please go to: www.ed.gov/offices/OVAE/CTE/legs.html.

6 Due to the limited number of students participating in the program from Rural High School, a decision was made to observe program operations at another site.

7 In this report, curriculum refers to the structure of CBTP courses, their goals, and ways that they ensure that all students are prepared for and have access to college-level course work.

8 The Texas Tech-Prep program includes a number of concentrations, with significant variation among them. In some cases, high school elective courses are required prerequisites for enrollment in college courses, and, in these concentrations, the high school courses do explicitly prepare students for college-level work. In other strands, such as criminal justice, high school courses are not explicitly linked. And, for all concentrations, general high school courses (those fulfilling graduation requirements) are not linked to the Tech-Prep curriculum.