

Mature Programs of Study: A Postsecondary Perspective – Year 3 Technical Report

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FHI 360
National Institute for Work and Learning

July 2011

National Research Center for Career and Technical Education
University of Louisville
Louisville, KY

Funding Information

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|---|--|
| Project Title: | National Research Center for Career and Technical Education |
| Grant Number: | VO51A070003 |
| Act Under Which Funds Administered: | Carl D. Perkins Career and Technical Education Act of 2006 |
| Source of Grant: | Office of Vocational and Adult Education U.S. Department of Education Washington, D.C. 20202 |
| Grantees: | University of Louisville National Research Center for Career and Technical Education 354 Education Building Louisville, KY 40292 |
| Project Director: | James R. Stone, III |
| Percent of Total Grant Financed by Federal Money: | 100% |
| Dollar Amount of Federal Funds for Grant: | \$4,500,000 |
| Disclaimer: | The work reported herein was supported under the National Research Center for Career and Technical Education, PR/Award (No. VO51A070003) as administered by the Office of Vocational and Adult Education, U.S. Department of Education. However, the contents do not necessarily represent the positions or policies of the Office of Vocational and Adult Education or the U.S. Department of Education and you should not assume endorsement by the Federal Government. |
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Mature Programs of Study: A Postsecondary Perspective – Year 3 Technical Report

There is consensus from many fronts that high schools are not adequately preparing students for college or the workplace. Perkins IV introduced promising legislation to promote programs of study (POS) as one way to address this problem for career technical education (CTE) students. In response to the requirement that Perkins recipients offer at least one POS, many districts have begun to create them. However, research is needed on whether and how POS are benefitting students.

This NRCCTE research study identifies and describes “mature” POS to understand how they work and why. We began with postsecondary institutions and are using a “backward mapping” technique to investigate how these colleges’ relationships with partnering high schools began and how the POS are structured. The Year 2 report described the qualitative theory and method for the study—a combination of case studies (Soy, 1997; Yin, 2009) and “backward mapping” (Elmore, 1980; Recesso, 1999)—and presented preliminary findings from interviews and observations across three “mature” POS sites. To complement these rich descriptions, we are also collecting data on student experiences. The current Year 3 technical report examines students’ perspectives on POS using multiple waves of student survey data. Future reports (Years 4/5) will combine the qualitative and quantitative data to present a coherent picture of how each of the three mature POS sites operates, in order to inform policy and provide models for other POS.

Background

As defined in Perkins IV, a POS:

- (a) incorporates secondary education and postsecondary elements,
- (b) includes coherent and rigorous content aligned with challenging academic standards and relevant career and technical content in a coordinated, non-duplicative progression of courses that align secondary with postsecondary education to adequately prepare students to succeed in postsecondary education,
- (c) includes the opportunity for secondary students to participate in dual or concurrent enrollment programs or other ways to acquire postsecondary education credits, and
- (d) leads to an industry-recognized credential or certificate at the postsecondary level, or an associate degree.

The legislation on POS contains components that have existed in various forms in prior Perkins Acts. Rather than search for research sites that incorporated all four critical components—which would be next to impossible given that the concept of POS was recently introduced when this study began—the primary selection criteria for “mature” POS sites for this study was the first component: specifically, several years of evidence that CTE students move from a high school CTE program *into and through* a postsecondary CTE program. Because “mature” POS may have begun under another name and include other aspects not in the Perkins legislation, we are seeking to understand all of the key features; Figure 1 shows both the components of the Perkins IV legislation and other potential components of POS.

Although the overall purpose of the research study is to examine how these mature sites evolved

and how they work, primarily using interview and observation data, we are also following students using survey and transcript data as they transition from high school to college in the POS at the selected sites. To understand what students might experience in POS and to develop surveys to capture these experiences, we relied on prior legislation and literature. Initiatives of the 1990s like youth apprenticeships, School-to-Work, and Tech Prep formed the basis for POS in Perkins and included an increasing emphasis on the integration of academic and technical skills and ways to facilitate the secondary postsecondary transition. Research from the fields of career counseling and career identity development (Lewis & Kosine, 2008), CTE transition (Castellano, Stringfield, & Stone, 2007; Lekes et al., 2007) and other recent research on career pathway programs (Pierce, 2001), career academies (Kemple, 2004), credit-based transition programs (Bailey & Karp, 2003; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007), and school-to-career programs (Furstenberg & Neumark, 2005) also informed our study.

The recent *Pathways to Prosperity* (Symonds, Schwartz, & Ferguson, 2011) and *Learning for Jobs* (OECD, 2010) reports suggest that other nations provide more structured career preparation for secondary and postsecondary students. These recent reports have mobilized U.S. policymakers and educators around the issue of linking secondary and postsecondary vocational training and work-based learning. In response, CTE proponents argue that POS are a promising approach to increasing students' college and career readiness because they integrate academics and career-related technical skills in a sequence of courses leading to a postsecondary degree or credential. However, research evidence on POS has not yet borne results, and longitudinal research on CTE students' educational pathways in general is limited. Nonetheless, three studies shed some light on what researchers might find when studying POS.

Castellano et al. (2007) studied career-based comprehensive school reform in multiple schools over five years and found that higher participation in CTE was related to lower chances of dropout. Students at two of the three high schools studied were more likely than their control counterparts to report having a post-high school plan. Lekes et al. (2007) examined secondary student matriculation to two selected community colleges offering CTE transition programs through partnerships with K-12 and secondary districts. One component of the study compared CTE and non-CTE high school students on academic experiences, achievement, and transition into the first semester of college. The second component provided an analysis examining CTE pathway students' transition experiences and outcomes associated with enrollment at the local community college. The findings showed that participation in CTE transition programs did not interfere with academic course-taking in high school. In other words, CTE students were equally prepared for college as matched non-CTE students and other relevant comparison groups. Additionally, student participation in CTE transition programs was associated with feeling more prepared for the transition to college and career, with numerous results pointing to student feelings of confidence and satisfaction with their choices about college and careers. CTE students also reported higher levels of preparation for college and careers than non-CTE students. Students who had taken dual credit courses earned more college credit and showed greater persistence than those who had not, and students requiring remedial coursework were not impeded in their persistence in college, at least within the timeframe of the study.

The findings from the CTE transition study (Lekes et al., 2007) are particularly meaningful for implementation of POS under Perkins IV because they promise positive results when academic

and CTE curricula are integrated with dual credit. These results suggest CTE transition programs with a dual focus on CTE and academic preparation can facilitate student transition to college and career without hindering academic performance. These programs also offer promising opportunities for high school students to develop the academic and employability skills needed for career preparation during college in high-demand occupational areas. A limitation of the Lekes et al. study was the short period of time during which the students were tracked. This curtailed the degree to which student matriculation patterns could be measured. Longitudinal research that spans more than the final year of high school and the first year of postsecondary experience is needed to determine the high school CTE practices that lead to success and retention in college and beyond to entry-level positions in the work force.

Karp and her colleagues (2007) were able to make use of large datasets from the state of Florida and the city of New York to examine dual enrollment using longitudinal student data and controlling for pre-existing characteristics. The findings led the authors to conclude that dual enrollment can be an effective college transition strategy. In New York City, students enrolled in one of 19 vocational high schools and participating in a program called “College Now,” which allowed dual enrollment at CUNY, were compared to their peers who did not participate. The researchers found that College Now students were more likely to pursue a bachelor’s degree, have higher first semester GPAs, and earn more college credits than those who did not participate in College Now. Because the Florida dataset did not have indicators for CTE students, it was necessary to create a new variable based on student coursetaking in CTE. Among the subsample classified as CTE students, those who participated in dual enrollment were more likely to earn a high school diploma, enroll in college, earn college credits, persist in college, and have higher GPAs up to three years post-high school. Although these investigations made use of large-scale data that allowed statistical controls and subgroup comparisons to illuminate overall outcomes of dual enrollment participation, they did not study the components of the dual enrollment experience that created the positive effects for student outcomes.

These and other prior studies focused primarily on student outcomes with little detailed information about the implementation process of initiatives leading to these outcomes. The current study builds on previous research regarding student preparation for college and careers by directly examining one type of structure (POS) that supports students’ transitions. The overall study uses a mixed methods approach, but this report is limited to findings from the student surveys that shed light on the POS from the students’ perspective.

Sample and Method

Site Selection

POS evolved over several decades of efforts to create effective transition programs from secondary school into postsecondary education or the workforce. Most of the mature sites in existence today are likely to have begun under a different name with slightly different components and/or structures. For this reason—in addition to the fact that younger programs created post-Perkins IV may not have been in existence long enough to meet our criteria for mature sites—we cast a somewhat wider net than just POS as defined by Perkins IV.

To identify mature POS-like sites, we relied on suggestions from CTE state directors, ACTE, researchers, and others involved in POS-related CTE efforts (e.g., High Schools That Work). Initial “scouting” visits were made in Year 2 to eight recommended sites looking for evidence that they met our criteria for “mature” sites and establishing relationships with relevant individuals in order to facilitate future visits should the sites be selected for the study. The method of identifying and narrowing down a pool of potential sites included nominations from CTE leaders at the national and state levels in government, for-profit, and not-for-profit sectors; preliminary web searches; phone calls; and finally an in-person visit. AED received almost 40 nominations of local sites and ended up with eight that we selected to visit.¹ In the initial screening (web and phone) we determined whether or not the site indeed had a secondary—postsecondary linkage. We did find many impressive secondary or postsecondary programs, but without the link between the two that provided a clear pathway to students, we did not consider these programs to be “mature” POS.

The criteria applied to potential sites for selection into the final pool of sites participating in the study included: (1) active cooperation between secondary and postsecondary levels, (2) sufficient numbers (>20) of students in each POS transitioning from secondary to postsecondary each year, (3) access to electronic student transcript data (for ease of data collection). Several sites that were highly recommended and met all of our initial criteria declined our visit on the basis of limited time and resources for hosting researchers. For this reason and because of our own limited time and resources, we do not claim to have conducted an exhaustive search. However, what we do have is a range of approaches to implementation of POS at the local level that we hope will help policymakers and practitioners better understand how POS are being implemented.

Of the eight sites that were visited, four were chosen to participate in the longitudinal study and three agreed to participate. Each of the three sites is anchored by a community college (see Table 1). Each college has at least a dozen area high schools feeding into it; however, only high schools that had developed a POS with the selected college and whose principals agreed to participate are included in this study. The sample therefore includes six participating high schools that feed into Desert College, six regular high schools and one alternate high school feeding into River College, and three high schools feeding into Northern College. Following the table appears a brief description of each site, excerpted from the case studies.

¹ The number of recommendations does not include entire states that nominators claimed we should look at because they had good models. Indeed, many states do provide well-developed templates and/or detailed guidelines for POS in their state. However, because this is a study of local implementation of POS, if specific local sites within a state were not also identified by the nominator or others whom we asked, we were unlikely to pursue state-level recommendations.

Table 1
Selected Mature Programs of Study Sites

| Masked Site Name | Location | | Programs of Study |
|--------------------|------------------|-------------|--|
| “River College” | Midwest/South | Small town | Industrial Maintenance, Mechatronics |
| “Desert College” | Southwest | Medium city | Film Tech, Culinary Arts, Construction Technology |
| “Northern College” | Northern Midwest | Small town | Automotive Technology, Welding |

River College is a community/technical college located in an industrial town with fairly close ties among education, business, and government. The college is fed by 14 high schools (including 2 vocational centers) in 6 counties. The college has the highest enrollment of high school students in the state, with 1700 high school students dually enrolled (30% of total college enrollment). The college began developing dual enrollment options over eight years ago to provide needed skills to the younger generation in a town with an aging population. The curricula are set in collaboration with the local workforce investment board, and agreements between the college and area high schools are individually tailored—by a dedicated coordinator—to the needs of each high school (including providing distance learning when necessary for rural schools). The college has tried to make it easy for each of its feeder high schools to set up articulation agreements to fulfill their vision that every student should be able to graduate from high school with some college credit.

Desert College plays a central role in postsecondary education for an urban population that is heavily Hispanic and lower-income. The college population includes many first-generation students who need help navigating the college culture. To assist these students, each department (e.g., engineering or education) at the college has its own “achievement coach” who works with students on everything from financial aid to personal problems to promote retention. In 2000, with large enrollments in technical areas, the college began to explore ways to build pipelines that started preparing students at the high school level to feed into the college. They funded a staff person with Perkins money in 2001 to head this effort, and by 2006 there were 3 full-time staff in the Office of High School Relations. The sole function of this entity is to work with area high schools on recruitment, articulation, credits, and enrollment. The college has articulation agreements in CTE areas with 4 feeder districts. Every program at the college is required to have an advisory board including secondary, postsecondary, and business/industry representatives. The CTE programs are highly attuned to the needs of both students and employers in the region; some students are even recruited to work before they have finished their programs. Due largely to the college’s outreach to high schools, dual enrollment has more than doubled in the last few years.

Northern College is a technical college in a small city that is the linchpin of a regional Tech Prep consortium that includes 27 school districts. It is also co-located with the local workforce center. The college’s articulation/dual enrollment programs started six years ago in response to high schools’ need for expanded CTE programs that they could not afford alone. Area high school CTE teachers were retiring, and the schools approached the college to talk about how to work

together and share resources to offer relevant programs to students. Stakeholders from area colleges, high schools, businesses, and workforce development were brought in to discuss program ideas and initiatives taking place elsewhere. In addition to Tech Prep, initial funding to launch new training programs to fill jobs in manufacturing came from a state “sector” grant as well as from local industry. College faculty are regularly out in the high schools (many of the college level classes are taught by college faculty at the high schools), and high school students are also brought to campus to become familiar with the college environment. The college has a website for POS to show which programs are offered at each high school and how each program connects with the college. The college website links to a state website that provides information about all state POS.

Survey Instrument²

Surveys for high school and community college students include items that the NRCCTE POS team selected from multiple national surveys with external and construct validity. Researchers from the South Carolina POS study then piloted the student survey at two of their schools, and Cronbach’s alphas were determined to be acceptable. Survey items cover students’ school and work activities, attitudes about their education experiences, and career and educational goals (immediate and future). On the detachable front page of the survey, students were asked to provide future contact information so that once the students leave school (either immediately following high school or after postsecondary education), we can use their contact information to find them again. In follow-up surveys administered annually, students are being asked about their educational and occupational experiences since the time of the last survey, reasons for deviations from expectations (e.g., compared to when you were finishing up in high school, do you have different ideas now about the kind of career you might want?), immediate and long-term goals, and employment status. Students who were added to the sample at the college level were asked retrospective questions about their high school career-planning experiences. Students who drop out of school or do not continue to the college are being sent a brief online survey to determine what they are doing and the reasons for their education and employment decisions.

Student Sample and Survey Administration Method

Two cohorts of CTE students from each of the participating high schools in the selected sites are being tracked for a period of four years (Years 2, 3, 4, and 5 of the study) on their secondary and postsecondary experience, academic and technical achievements, and initial work-related experiences. The time frame includes the students’ last one to two years of high school and the first one to two years of postsecondary education and/or work, depending on the cohort (see

² In addition to surveys, we are also collecting student transcripts from high school and college to follow their course enrollment and performance in the POS. Cumulative transcripts have been collected for all high school students participating in the study and are being coded using the Classification of Secondary School Courses (CSSC), which is structured as follows: courses within a program area are uniquely identified by a 6 digit code. The first 2 digits represent the main program area (e.g., Mathematics). The next 2 digits represent a subcategory within the program area (e.g., courses that fall under Pure Mathematics), and the last 2 digits define the specific course within the program area and subcategory (e.g., Algebra I). All academic courses, CTE courses, and electives taken during high school are being coded according to this scheme. Standardized test scores, graduation status, and cumulative GPA are also being recorded. Two trained coders are completing the transcript work, and a member of the research team is double coding a few transcripts from each school to ensure inter-rater reliability.

Figure 2). Student surveys were first administered to high school students during visits to each of the three sites in Spring 2009 and at two time points after that (see Table 2 and Figures 2 and 3). Surveys were collected from students participating in classes that were relevant for the POS of interest at each site. For students under 18 years of age, letters (in Spanish and English) were sent home to parents describing the study and allowing parents to opt out; only 3 did so. Students were asked for their assent prior to taking each round of surveys.

Table 2
Response Rates of High School and College Participants (College names are masked)

| | Year | Site | Desert | River | Northern | Total | Explanation |
|----|------------------|--|---------|--------|----------|-----------------------|--|
| 1A | Spring 2009 | High School Participants | 132 | 47 | 40 | 219 | HS Juniors & seniors in 2009 |
| 1B | Winter 2009-2010 | Alternate Survey Participants (out of total alternate survey candidates) | 8/52 | 3/18 | 3/13 | 14/83 | Students completing the follow-up survey (no longer enrolled in HS, but did not enroll in college POS of interest in Fall 2009). |
| 2A | Fall 2009 | College Participants (out of total enrolled in the POS of interest) | 55/856 | 21/228 | 9/143 | 85/1227 | Students completing the 1st round college survey (regardless of whether they participated in HS). |
| 1C | Spring 2010 | High School Participants 2nd round (out of total HS survey candidates) | 24/82 | 7/20 | 3/20 | 34/122 | HS seniors in 2010 (juniors during first HS survey administration). |
| 2B | Winter 2010-2011 | College Participants (out of total enrolled in POS of interest) | 197/842 | 23/53 | 99/189 | 319/1084 ³ | Students completing the 2nd round college survey (regardless of whether they were high school study participants). |
| 1D | Summer 2011 | Follow-up Survey Participants (out | 125 | 4/37 | 30 | 192 ⁴ | Students from the HS sample who have not enrolled |

³ This number is inflated. We have requested DOB from the sites so that we can remove older students (who likely did not experience the POS in high school) from the eligible pool. Future reports will present the corrected numbers.

⁴ Only totals are presented for two of the sites here, since recruitment is still in progress.

| | |
|---------------------------------|--|
| of original high school sample) | in the college in the selected POS, ⁵ or who have left the college-level POS. ⁶ Includes those who were eligible for the first round alternate survey. |
|---------------------------------|--|

Notes. Row numbers in Table 2 correspond with numbers in Figures 2 and 3. Online surveys for college students in 2010-11 are still being collected and the follow-up surveys are currently being administered; the response rates for both are expected to increase.

Student Survey Results

Although the planned research design spans five years, this report presents the survey findings from participating student cohorts in the first two years of the study. Thus, the research should be considered “in progress.” Nevertheless, interesting findings are emerging. It should be kept in mind that the results presented below are for students participating in POS of interest in this study at the high school and/or college level only. No comparisons are being made to students not enrolled in a POS because data were only collected from POS students. Because the sample is not representative, findings should be interpreted as applying only to those students who participated in the survey. Finally, results presented are all descriptive, even when comparisons are drawn between year to year results.

We begin with the first round of high school student surveys and then report the second round so that results can be compared from junior to senior year for the youngest cohort (1A and 1C in Figures 2 and 3). Next, we present survey findings for school leavers (those who were neither in high school nor college during the second round of data collection; 1B in Figures 2 and 3). Finally, we present findings from the first round of college data collection, which includes participants from the older cohort if they made that transition (2A in Figures 2 and 3). Future reports will include survey findings from the remaining rounds of data collection (2B, 2C, 3A, and 3B in Figure 2).

Original High School Sample (Round 1A)

In Spring 2009, researchers visited each of the participating high schools across the 3 sites and administered surveys on-site to all available juniors and seniors in the POS of interest (some sophomores happened to be taking these classes as well). A total of 219 students (44% seniors, 54% juniors, 2% sophomores; see 1A in Table 2 above and Table 3 below) completed the first round survey in high school.

⁵ Several students may have taken dual enrollment classes in the college POS during high school and completed a certificate by the time of high school graduation. Candidates for this survey include those who are just not in the *selected* POS at the college - many may be in other programs at the college, or in other colleges.

⁶ This refers to the (small) number of students who were in college by Fall 2009, and were no longer in the college program by the second-round college survey.

Table 3
Grade Enrollment of First Round High School Survey Takers

| Grade | Number reporting | Percent |
|------------------|------------------|---------|
| 10 th | 5 | 2.3 |
| 11 th | 117 | 54.2 |
| 12 th | 94 | 43.5 |
| Total | 219 | 100 |

Note. Three participants did not respond to this question.

The high school sample was 72% male and 28% female, however there was some variation across sites (see Table 4). Specifically, the River and Northern sites were overwhelmingly male (94% and 97%, respectively), whereas the Desert site was 43% female and 57% male. This gender disparity may be expected, given the POS that were chosen for study at each site and traditional enrollment patterns by gender.

Table 4
Gender of First Round High School Survey Takers

| Gender | Number reporting | Percent |
|---------|------------------|---------|
| Male | 156 | 72.2 |
| Female | 60 | 27.8 |
| Missing | 3 | 1.4 |
| Total | 219 | 100 |

Note. Three participants did not respond to this question.

Participants in the high school sample primarily identified as White (51%) or Latino (43%; see Table 5). Students participating at the Desert site were primarily Latino, whereas no Latino students participated from either the River or Northern sites.

Table 5
Race and Ethnicity of First Round High School Survey Takers

| Race/ethnicity | Number reporting | Percent |
|---------------------------|------------------|---------|
| Alaskan native | 11 | 5.0 |
| Asian | 5 | 2.3 |
| Black | 5 | 2.3 |
| Latino | 95 | 43.4 |
| Hawaiian/Pacific Islander | 1 | .5 |
| White | 112 | 51.1 |
| Multiple | 11 | 5.0 |

Note. Numbers add up to more than 100% because more than one category could be selected.

The majority of students (62%) had selected their POS by 10th grade (see Table 6). Over half of the students surveyed in the spring of 2009 answered that the POS they were enrolled in was the one they were most interested in (52%), and that it was related to their career goals (65%; see Table 7).

Table 6
High School Students' Report of POS Selection by Grade

| Grade | Number reporting | Percent |
|-------------------------|------------------|---------|
| 8 th | 27 | 12.7 |
| 9 th | 46 | 21.6 |
| 10 th | 58 | 27.2 |
| 11 th | 41 | 19.2 |
| 12 th | 20 | 9.4 |
| I have not chosen a POS | 21 | 9.9 |
| Total | 213 | 97.3 |

Table 7
High School Students' Report of Interest in POS & Relevance to Career Goals

| Interest | Number reporting | Percent |
|------------|------------------|---------|
| Yes | 112 | 52.3 |
| No | 51 | 23.8 |
| Don't know | 51 | 23.8 |
| Total | 214 | 99.9 |

| Related to career goals | Number reporting | Percent |
|-------------------------|------------------|---------|
| Yes | 136 | 62.1 |
| No | 39 | 17.8 |
| Don't know | 34 | 15.5 |
| Total | 209 | 95.4 |

Most students (63% - 84%) agreed or strongly agreed that being in a POS made them more engaged in school and in preparing for a career (see Table 8). The majority of high school students (62% - 87%) agreed or strongly agreed that information learned in school is relevant for future education or career plans (see Table 9). Additionally, the majority of students in the sample (64% - 77%) reported having done research on potential careers, including filling out career interest questionnaires and looking into local job opportunities. but fewer students reported doing research on career fields with the most job growth potential (44%; see Table 10). Although over half of students (55% - 61%) had spoken individually with a counselor regarding career plans, met with someone in their career field of interest, and/or listened to a local business representative in class, half of the sample had never taken part in a parent-counselor meeting to discuss career plans (see Table 11).

Table 8
High School Students' Perceptions of POS: Number (Percent)

| Having a POS has... | Strongly agree | Agree | Disagree | Strongly disagree |
|---|----------------|------------|-----------|-------------------|
| Made me more likely to want to come to school | 49 (22.6) | 116 (53.5) | 45 (20.7) | 7 (3.2) |
| Made me less likely to want to drop out of school | 59 (27.2) | 112 (51.6) | 28 (12.9) | 18 (8.3) |
| Helped me get better grades | 39 (18.0) | 114 (52.5) | 55 (25.3) | 9 (4.1) |
| Made me feel like I fit in better at school | 27 (12.6) | 112 (52.3) | 57 (26.6) | 18 (8.4) |
| Helped me make connections | 69 (31.8) | 113 (52.1) | 31 (14.3) | 4 (1.8) |
| Made it more likely that I would take courses I need for the future | 65 (30.0) | 118 (54.4) | 26 (12.0) | 8 (3.7) |
| Made it more likely that my parents got involved in my selection of courses | 22 (10.1) | 93 (42.9) | 80 (36.9) | 22 (10.1) |
| Made me focus my studies so I know where I am headed | 56 (25.8) | 119 (54.8) | 30 (13.8) | 12 (5.5) |

Note. All items in this table are based on 217 responses.

Table 9
High School Students' Reports of School Relevance to College and Career: Number (Percent)

| Most of the information we learn in school... | Strongly agree | Agree | Disagree | Strongly disagree | Total |
|--|----------------|------------|-----------|-------------------|------------|
| Is useful for everyday life | 19 (8.8) | 115 (53.5) | 67 (31.2) | 14 (6.5) | 215 (98.2) |
| Will be useful for college or further training | 59 (27.3) | 129 (59.7) | 25 (11.6) | 3 (1.4) | 216 (98.6) |
| Will be useful for my career | 36 (16.9) | 111 (52.1) | 52 (24.4) | 14 (6.6) | 213 (97.3) |

Table 10
High School Students' Reports of Career-Related Research: Number (Percent)

| Activity | Yes | No |
|---|------------|------------|
| Answered questions related to jobs and careers on a computer | 142 (65.1) | 76 (34.9) |
| Filled out questionnaires related to jobs and careers | 144 (66.1) | 74 (33.9) |
| Researched different jobs or careers | 169 (77.9) | 48 (22.1) |
| Researched different colleges, universities, or military branches | 148 (68.2) | 69 (31.8) |
| Researched different job opportunities where I live | 141 (65.0) | 76 (35.0) |
| Researched industries with the most job growth and opportunity | 96 (44.2) | 121 (55.8) |

Table 11

High School Students' Reports of Career-Related Activities: Number (Percent)

| Activity | 5 or more times | 1-4 times | 0 times | Total |
|---|-----------------|------------|------------|------------|
| I spoke with or visited someone in a career that interests me | 30 (13.9) | 128 (59.3) | 58 (26.9) | 216 (98.6) |
| Someone from a local business talked to one of my classes about working at their company or in their career | 7 (3.2) | 119 (54.8) | 91 (41.9) | 217 (99.1) |
| I toured a local business with a group from my school | 4 (1.9) | 74 (34.4) | 137 (63.7) | 215 (98.2) |
| A teacher or counselor talked to me individually about my plans for a career or further education after high school | 32 (14.7) | 133 (61.3) | 52 (24.0) | 217 (99.1) |
| My parents/guardians and I attended a meeting at school to talk about plans for after high school | 18 (8.3) | 90 (41.7) | 108 (50.0) | 216 (98.6) |

Interviews with administrators and counselors at the high schools suggested that they were using CCTI-type templates for POS to help students plan their courses, and most students (69%) had not participated in a counselor-parent-student conference POS (see Table 12). In fact, parents were perceived to be the most helpful individuals regarding course planning (31%). Students were more likely to have received no help at all (21%) than help from guidance counselors (17%) or teachers (13%) (see Table 13). Despite the lack of school-based guidance, 84% of high school students were at least somewhat satisfied with the help they received in planning their courses (see Table 14). Almost half (45%) of students were unaware of dual credit courses being offered in their POS (see Table 15). Dual credit options was one of the criteria used to selected the three participating study sites, but it seems that information about these opportunities have not reached the students.

Table 12

High School Students' Reports of Frequency of Conversations Regarding Course Planning: Number (Percent)

| In planning the courses you took or will take in high school how often did you... | More than 3 times | 1-2 times | Never | Total |
|---|-------------------|------------|------------|------------|
| Talk with your parents | 102 (47.7) | 90 (42.1) | 22 (10.3) | 214 (97.7) |
| Talk with your teachers | 52 (24.1) | 128 (59.3) | 36 (16.7) | 216 (98.6) |
| Talk with your guidance counselor | 43 (20.0) | 89 (41.4) | 83 (38.6) | 215 (98.2) |
| Talk with your friends | 132 (61.7) | 73 (34.1) | 9 (4.2) | 214 (97.7) |
| Take part in a parent-counselor-student conference | 12 (5.6) | 56 (25.9) | 148 (68.5) | 216 (98.6) |

Table 13

High School Students' Reports of Most Helpful Individuals in Course Planning

| Individuals offering help | Number reporting | Percent |
|---|------------------|---------|
| Parents, step-parents, or other adults with whom you live | 68 | 31.3 |
| Teacher | 29 | 13.4 |
| Guidance counselor | 37 | 17.1 |
| Friends of any age | 38 | 17.5 |
| No one helped me | 45 | 20.7 |
| Total | 217 | 99.1 |

Table 14

High School Students' Reported Satisfaction with Help in Course Planning

| Level of satisfaction | Number reporting | Percent |
|-----------------------|------------------|---------|
| Very satisfied | 94 | 43.3 |
| Somewhat satisfied | 88 | 40.6 |
| Not at all satisfied | 5 | 2.3 |
| Did not receive help | 30 | 13.8 |
| Total | 217 | 99.1 |

Table 15

High School Students' Report of POS Classes Eligible for College Credit

| Number of courses eligible for credit | Number reporting | Percent |
|---------------------------------------|------------------|---------|
| 0 | 26 | 11.9 |
| 1 | 33 | 15.1 |
| 2 | 22 | 10.1 |
| 3 | 9 | 4.1 |
| 4 | 19 | 8.7 |
| 5 | 5 | 2.3 |
| Don't know | 99 | 45.4 |
| Total | 217 | 99.1 |

Finally, the majority of high school study participants (79%) planned to enroll in postsecondary education (at least technical school) after high school, with 30% planning to enroll in a four-year college (see Table 16). Most students (88%) claimed to have at least some knowledge of the qualifications needed for their chosen job (see Table 17); however, 39% had not participated in any work-based learning (WBL) experiences (see Table 18). For students who did participate, almost half (47.4%) reported that WBL experiences were at least somewhat related to their future career (see Table 19). Less than a quarter of students (21%) reported current paid jobs as being at least somewhat related to chosen careers.

Table 16
High school Students' Reports of Plans After High School

| Plans | Number reporting | Percent |
|--|------------------|---------|
| Enroll in a 4 year college or university | 65 | 29.7 |
| Enroll in a 2 year community college | 30 | 13.7 |
| Enroll in a 2 year college and transfer to a 4 year university | 31 | 14.2 |
| Enroll in a vocational, technical or trade school | 27 | 12.3 |
| Join the armed services/military | 14 | 6.4 |
| Get a job | 11 | 5.0 |
| Start a family | 3 | 1.4 |
| Travel | 1 | 0.5 |
| Not sure what I want to do | 16 | 7.3 |

Table 17
High School Students' Knowledge of Future Job Characteristics: Number (Percent)

| Thinking about the job you would like to have after completing your education, how much knowledge do you have of... | Have a good deal of knowledge | Have some knowledge | Have little or no knowledge | Total |
|---|-------------------------------|---------------------|-----------------------------|------------|
| Job activities | 94 (43.5) | 111 (51.4) | 11 (5.1) | 216 (98.6) |
| Job qualifications | 78 (36.1) | 111 (51.4) | 27 (12.5) | 216 (98.6) |
| Training and education required for the job | 89 (41.8) | 100 (46.9) | 24 (11.3) | 213 (97.3) |
| School or colleges offering needed training | 96 (44.7) | 93 (43.3) | 26 (12.1) | 215 (98.2) |
| Future demand of job | 75 (34.7) | 100 (46.3) | 41 (19.0) | 216 (98.6) |
| Different ways to get the job | 67 (31.2) | 112 (52.1) | 36 (16.7) | 215 (98.2) |
| Advancement opportunities of job | 63 (29.4) | 114 (53.3) | 37 (17.3) | 214 (97.7) |
| Job hours | 80 (37.0) | 99 (45.8) | 37 (17.1) | 216 (98.6) |
| Salary range | 73 (33.8) | 103 (47.7) | 40 (18.5) | 216 (98.6) |

Table 18
High School Students' Reports of Participation in Work-Based Learning Experiences (WBL)

| During high school, I participated in... | Number reporting | Percent |
|--|------------------|---------|
| An internship | 46 | 21.0 |
| Co-op | 27 | 12.3 |
| Job shadowing or work site visits | 46 | 21.0 |
| Mentoring | 39 | 17.8 |
| Community service | 57 | 26.0 |
| School-based enterprise | 17 | 7.8 |
| None of these | 86 | 39.3 |

Note. Total ≠ 219 because students could select more than one option.

Table 19

*High School Students' Reports of WBL Experiences and Job Relevance to Future Career:
Number (Percent)*

| How closely related are the following to your future career? | Closely related | Somewhat related | Not related at all | Don't have a job this year |
|--|-----------------|------------------|--------------------|----------------------------|
| WBL experiences | 32 (15.5) | 66 (31.9) | 47 (22.7) | 62 (30.0) |
| Current paid job | 19 (9.3) | 24 (11.7) | 69 (33.7) | 93 (45.4) |

High School Second Round (Seniors in Spring 2010; 1C in Figures 2 and 3)

In Spring 2010, 63% of the Desert sample, 43% of the River sample, and 51% of the Northern sample were still in high school (see 1C in Figures 2 and 3). The initial high school survey was adapted for an online format for this round of data collection to reduce costs. Only high school students who were in the initial high school sample and expected to be still enrolled in high school (mostly those who had been juniors in Spring 2009) were recruited for this survey because they were the only ones whose parents had received notification of the study in the previous year. Individual letters with the survey invitation were purportedly distributed by school administrators. Reminders to students were conducted through e-mail as well as general verbal reminders by school staff. Students who completed the survey were sent a \$25 Amazon.com gift card. These efforts resulted in a 28% response rate ($N = 34$) among those moving from 11th to 12th grade.⁷

Thirty four of the eligible 122 participants still in high school in 2010 participated in the second round high school survey. That is, 122 students who participated in the study as a junior or sophomore were recruited to participate again the following year, but only 34 responded to the second round survey. Although this section compares responses from these students in their junior and senior year, statistical repeated-measures testing was not conducted due to small cell sizes. Twenty four (71%) of the 34 were from the Desert site, 21% were from the River site, and 9% were from the Northern site. The gender breakdown for the overall second round sample and the Desert subset of the sample were similar to the previous year's high school survey (see Table 20). Participants from River and Northern sites were all male during this round.

Table 20

Gender of Second Round High School Survey Takers

| Gender | Number reporting | Percent |
|---------|------------------|---------|
| Male | 21 | 62 |
| Female | 9 | 26 |
| Missing | 4 | 12 |

Note. Four participants did not respond to this question.

⁷ Chi-square analyses indicated no significant differences in follow-up response status based on gender, site, educational aspirations, or immediate plans after high school.

In comparing repeat participants' survey responses to their responses from the previous year, participants reported talking more frequently with parents, teachers, counselors, and friends about planning courses as seniors than they had as juniors (see Table 21). Participants talked the most frequently with friends during both junior (64%) and senior years (74%) compared to any other individuals, followed by parents (44% and 62% for junior and senior years respectively). During the first high school survey, 53% of those who also responded to the second round survey claimed they had never discussed course planning with a guidance counselor. By the second round survey, 83% had spoken to a counselor about course planning at least once, but counselors were still the least likely option for students to turn to. Eighteen percent of responders had still not had a conversation with a guidance counselor about course planning by the second round survey.

Table 21
High School Students' Reports of Frequency of Conversations Regarding Course Planning Over Two Years: Number (Percent)

| In planning the courses you took or will take in high school how often did you... | More than 3 times | | 1-2 times | | Never | |
|---|-------------------|-----------|-----------|-----------|-----------|-----------|
| | Year 1 | Year 2 | Year 1 | Year 2 | Year 1 | Year 2 |
| Talk with your parents | 15 (44.1) | 21 (61.8) | 12 (35.3) | 11 (32.4) | 7 (20.6) | 2 (5.9) |
| Talk with your teachers | 7 (20.6) | 13 (38.2) | 20 (58.8) | 19 (55.9) | 7 (20.6) | 2 (5.9) |
| Talk with your guidance counselor | 5 (14.7) | 8 (23.5) | 11 (32.4) | 20 (58.8) | 18 (52.9) | 6 (17.6) |
| Talk with your friends | 21 (63.6) | 25 (73.5) | 10 (30.3) | 7 (20.6) | 2 (6.1) | 2 (5.9) |
| Take part in a parent-counselor-student conference | 1 (2.9) | 5 (14.7) | 8 (23.5) | 13 (38.2) | 25 (73.5) | 16 (47.1) |

Note. N = 34 (100%) for all items for both years.

Parents remained the most helpful group from one year to the next in course planning, although the percentage who found parents to be the most helpful dropped from the first year to the second (from 53% to 42%; see Table 22). Teachers, guidance counselors, and friends were all seen as more helpful than they were the previous year. From one year to the next, participants' level of satisfaction with the help they received in course planning increased. By the second round survey, 67% of responders were very satisfied with the help they had received, compared to 42% the previous year (see Table 23).

Table 22
High School Students' Reports of Most Helpful Individuals in Course Planning Over Two Years: Number (Percent)

| Individuals offering help | Year 1 | Year 2 |
|---|-----------|-----------|
| Parents, step-parents, or other adults with whom you live | 18 (52.9) | 14 (42.4) |
| Teacher | 4 (11.8) | 7 (21.2) |
| Guidance counselor | 1 (2.9) | 5 (15.2) |
| Friends of any age | 5 (14.7) | 7 (21.2) |
| No one helped me | 6 (17.6) | 0 (0.0) |

| | | |
|-------|----------|-----------|
| Total | 34 (100) | 33 (97.1) |
|-------|----------|-----------|

Table 23

*High School Students' Reported Satisfaction with Help in Course Planning Over Two Years:
Number (Percent)*

| Level of satisfaction with help received | Year 1 | Year 2 |
|--|-----------|-----------|
| Very satisfied | 14 (42.4) | 22 (66.7) |
| Somewhat satisfied | 13 (39.4) | 10 (30.3) |
| Not at all satisfied | 0 (0.0) | 0 (0.0) |
| Did not receive help | 6 (18.2) | 2 (3.0) |

Note. N = 33 (97%).

The majority (74%) of high school students in the second round agreed that the POS they were enrolled in was the one of most interest to them, compared to only half of the same group of students the first year. Most of the second round high school survey takers still agreed that their POS was related to their career goals (22 students) as they did in the first round (24 students). However, there were a few more “don’t know” responses by the second round (4 students) compared to the first (2 students; see Table 24).

Table 24

*High School Students' Report of Interest in POS & Relevance to Career Goals Over Two Years:
Number (Percent)*

| POS is one of most interest | Year 1 | Year 2 |
|-----------------------------|-----------|-----------|
| Yes | 17 (50.0) | 23 (74.2) |
| No | 14 (41.2) | 4 (12.9) |
| Don't know | 3 (8.8) | 4 (12.9) |
| Total | 34 (100) | 31 (91.2) |

| Related to career goals | Year 1 | Year 2 |
|-------------------------|-----------|-----------|
| Yes | 24 (70.6) | 22 (73.3) |
| No | 8 (23.5) | 4 (13.3) |
| Don't know | 2 (5.9) | 4 (13.3) |
| Total | 34 (100) | 30 (88.2) |

Second round survey participants had more knowledge about the eligibility of their courses for college credit, a characteristic present in each of the three sites. However, 31% (compared to 59% the previous year) still did not know whether college credit was available through courses at their high school.

Table 25

*Second Round High School Students' Report of POS Classes Eligible for College Credit:
Number (Percent)*

| Number of courses eligible for credit | Year 1 | Year 2 |
|---------------------------------------|-----------|-----------|
| 0 | 4 (11.8) | 4 (12.5) |
| 1 | 2 (5.9) | 3 (9.4) |
| 2 | 1 (2.9) | 4 (12.5) |
| 3 | 2 (5.9) | 3 (9.4) |
| 4 | 3 (8.8) | 2 (6.3) |
| 5 | 2 (5.9) | 3 (9.4) |
| Don't know | 20 (58.8) | 10 (31.3) |
| N/A, not an option at my school | N/A | 3 (9.4) |
| Total | 34 (100) | 32 (94.1) |

Note. “Not an option at my school” was not a response choice on the first year survey.

High school students’ opinions about their involvement in a POS and their academic engagement in school remained positive by the second round survey. The largest increase was in the number of students strongly agreeing that being enrolled in a POS made them more interested in coming to school (from 24% in Year 1 to 42% in Year 2); followed by the increase in students strongly agreeing that being in a POS has helped them focus their studies (from 29% in Year 1 to 44% in Year 2). There was an increase in students reporting they agreed or strongly agreed with the following benefits of being involved in a POS: “Helped me get better grades” (from 21 to 25 students), “Helped me make connections (from 28 to 30 students), “Made it more likely that I would take courses that I need for the future (from 29 to 30 students) and “Made it more likely that my parents got involved in my course selection” (from 19 to 21 students; see Table 26).

Table 26
High School Students' Perceptions of POS Over Two Years: Number (Percent)

| Having a POS has... | Strongly agree | | Agree | | Disagree | | Strongly disagree | |
|---|----------------|--------------|--------------|--------------|--------------|--------------|-------------------|------------|
| | Year 1 | Year 2 | Year 1 | Year 2 | Year 1 | Year 2 | Year 1 | Year 2 |
| Made me more likely to want to come to school | 8 (23.5) | 14 (42.4) | 17 (50.0) | 11 (33.3) | 5 (14.7) | 6 (18.2) | 4 (11.8) | 2 (6.1) |
| Made me less likely to want to drop out of school | 12 (35.3) | 14 (42.4) | 15 (44.1) | 13 (39.4) | 3 (8.8) | 4 (12.1) | 4 (11.8) | 2 (6.1) |
| Helped me get better grades | 6 (17.6) | 9 (27.3) | 15 (44.1) | 16 (48.5) | 10 (29.4) | 7 (21.2) | 3 (8.8) | 1 (3.0) |
| Made me feel like I fit in better at school | 7 (21.2) | 7 (21.2) | 13 (39.4) | 13 (39.4) | 8 (24.2) | 11 (33.3) | 5 (15.2) | 2 (6.1) |
| Helped me make connections between what I study and what type of career I want ⁸ | 12 (35.3) | 15 (45.5) | 16 (47.1) | 15 (45.5) | 5 (14.7) | 2 (6.1) | 1 (2.9) | 1 (3.0) |
| Made it more likely that I would take courses I need for the future | 11 (32.4) | 11 (33.3) | 18 (52.9) | 19 (57.6) | 2 (5.9) | 2 (6.1) | 3 (8.8) | 1 (3.0) |
| Made it more likely that my parents got involved in my selection of courses | 5 (14.7) | 7 (21.2) | 14 (41.2) | 14 (42.4) | 11 (32.4) | 9 (27.3) | 4 (11.8) | 3 (9.1) |
| Made me focus my studies so I know where I am headed | 10 (29.4) | 14 (43.8) | 18 (52.9) | 14 (43.8) | 4 (11.8) | 3 (9.4) | 2 (5.9) | 1 (3.1) |

Note. N = 34 for all items, in Year 1 survey except for "made me feel like I fit in better at school" (N = 33). N = 33 for all items in Year 2 survey except for "made me focus my studies" (N = 32).

High school students' reports of school relevance to college and career did not change drastically from one year to the next, with most students continuing to agree that information learned in school will be useful for everyday life, further education, and a future career. Overall, students had engaged in more career-related research by their senior year compared to their junior year. Specifically, 27 students each had answered questions related to jobs and careers on a computer, filled out questionnaires related to jobs and careers, and researched different colleges or military branches. The previous year 22, 25, and 21 students respectively had engaged in these activities. There was no change in students' reports of researching local job opportunities, and 19 students had researched industries with the most growth, compared to 11 the previous year (see Table 27).

⁸ In the Year 1 survey, this item was worded "helped me make connections".

Table 27

High School Students' Reports of Career-Related Research Over Two Years: Number (Percent)

| Activity | Year 1 | Year 2 |
|---|-----------|-----------|
| Answered questions related to jobs and careers on a computer | 22 (64.7) | 27 (87.1) |
| Filled out questionnaires related to jobs and careers | 25 (73.5) | 27 (87.1) |
| Researched different jobs or careers | 31 (91.2) | 27 (87.1) |
| Researched different colleges, universities, or military branches | 21 (61.8) | 27 (87.1) |
| Researched different job opportunities where I live | 22 (64.7) | 22 (71.0) |
| Researched industries with the most job growth and opportunity | 11 (32.4) | 19 (61.3) |

Note. N = 34 for all items on Year 1 survey and N = 31 for all items on Year 2 survey.

There were no major changes from one year to the next in high school students' reports of career-related activities. The largest increase in career-related activities occurring five or more times was students speaking with someone working in a career field of interest to them (from 9% in Year 1 to 26% in Year 2). In terms of activities happening at least once, a few more students had experienced someone from a local business talking to their class (from 18 students during round 1 to 22 students in round 2); touring a local business (from 12 to 14 students); and having a one on one conversation with a teacher or counselor regarding plans after high school (from 24 to 26 students). The largest change was in students attending a meeting at school with their parents to talk about plans after high school (from 13 students in round 1 to 19 students in round 2).

Table 28

High School Students' Reports of Career-Related Activities Over Two Years: Number (Percent)

| Activity | 5 or more times | | 1-4 times | | 0 times | |
|---|-----------------|----------|-----------|-----------|-----------|-----------|
| | Year 1 | Year 2 | Year 1 | Year 2 | Year 1 | Year 2 |
| I spoke with or visited someone in a career that interests me | 3 (8.8) | 8 (25.8) | 22 (64.7) | 17 (54.8) | 9 (26.5) | 6 (19.4) |
| Someone from a local business talked to one of my classes about working at their company or in their career | 1 (2.9) | 0 (0.0) | 17 (50.0) | 22 (71.0) | 16 (47.1) | 9 (29.0) |
| I toured a local business with a group from my school | 0 (0.0) | 0 (0.0) | 12 (36.4) | 14 (45.2) | 21 (63.6) | 17 (54.8) |
| A teacher or counselor talked to me individually about my plans for a career or further education after high school | 5 (14.7) | 7 (22.6) | 19 (55.9) | 19 (61.3) | 10 (29.4) | 5 (16.1) |
| My parents/guardians and I attended a meeting at school to talk about plans for after high school | 3 (8.8) | 7 (22.6) | 10 (29.4) | 12 (38.7) | 21 (61.8) | 12 (38.7) |

Note. N = 34 for all items on Year 1 survey and N = 31 for all items on Year 2 survey.

The number of students planning to enroll in a 4-year college or university fell from 14 the first year to 11 the second year (see Table 29). More students were planning to either (1) enroll in a 2 year community college (5 students in the first round compared to 8 in the second round) or (2)

enroll in a 2-year college and transfer to a 4-year university (from 2 to 6 students).

Table 29

High School Students' Reports of Plans After High School Over Two Years: Number (Percent)

| Plans | Year 1 | Year 2 |
|--|-----------|-----------|
| Enroll in a 4 year college or university | 14 (41.2) | 11 (37.9) |
| Enroll in a 2 year community college | 5 (14.7) | 8 (27.6) |
| Enroll in a 2 year college and transfer to a 4 year university | 2 (5.9) | 6 (20.7) |
| Enroll in a vocational, technical, or trade school | 5 (14.7) | 0 (0.0) |
| Join the armed services/military | 1 (2.9) | 2 (6.9) |
| Get a job | 1 (2.9) | 2 (6.9) |
| Travel | 1 (2.9) | 0 (0.0) |
| Not sure what I want to do | 5 (14.7) | 0 (0.0) |

Note. N = 34 (100%) for Year 1 survey and N = 29 (85%) for Year 2 survey.

The number of students reporting that they had a good deal of knowledge about aspects of their future job increased in all categories from junior to senior year except for “advancement opportunities”, which remained unchanged. The job aspects that students seemed to be gaining the most knowledge on between their junior and senior years were job qualifications and required training and education (38% in Year 1 to 61% in Year 2 for both categories).

Interestingly, students were most likely to report at least some knowledge of job activities in Year 1, but the numbers of those reporting a good deal of knowledge as well as little or no knowledge of this aspect of a future job both increased by Year 2. For both Years 1 and 2, the job aspect that students most reported having little knowledge of was different ways to get their future job (see Table 30). Again, the sample size of students responding at both time points was only 34, so the results presented in the preceding section should not be interpreted as representative of all POS students.

Table 30

High School Students' Knowledge of Future Job Characteristics Over Two Years: Number (Percent)

| Thinking about the job you would like to have after completing your education, how much knowledge do you have of... | Have a good deal of knowledge | | Have some knowledge | | Have little or no knowledge | |
|---|-------------------------------|-----------|---------------------|-----------|-----------------------------|----------|
| | Year 1 | Year 2 | Year 1 | Year 2 | Year 1 | Year 2 |
| Job activities | 13 (38.2) | 18 (58.1) | 20 (58.8) | 8 (25.8) | 1 (2.9) | 5 (16.1) |
| Job qualifications | 13 (38.2) | 19 (61.3) | 16 (47.1) | 9 (29.0) | 5 (14.7) | 3 (9.7) |
| Training and education required for the job | 13 (38.2) | 19 (61.3) | 17 (50.0) | 10 (32.3) | 4 (11.8) | 2 (6.5) |
| School or colleges offering needed | 15 (44.1) | 16 (51.6) | 13 (38.2) | 10 (32.3) | 6 (17.6) | 5 (16.1) |

| | | | | | | |
|----------------------------------|-----------|-----------|-----------|-----------|----------|----------|
| training | | | | | | |
| Future demand of job | 12 (35.3) | 15 (48.4) | 17 (50.0) | 9 (29.0) | 5 (14.7) | 7 (22.6) |
| Different ways to get the job | 10 (29.4) | 12 (38.7) | 16 (47.1) | 11 (35.5) | 8 (23.5) | 8 (25.8) |
| Advancement opportunities of job | 13 (38.2) | 13 (43.3) | 16 (47.1) | 13 (43.3) | 5 (14.7) | 4 (13.3) |
| Job hours | 12 (35.3) | 17 (54.8) | 17 (50.0) | 11 (35.5) | 5 (14.7) | 3 (9.7) |
| Salary range | 11 (32.4) | 16 (51.6) | 18 (52.9) | 11 (35.5) | 5 (14.7) | 4 (12.9) |

Note. N = 34 (100%) for all items on Year 1 survey. N = 31 for all items except for "knowledge of advancement opportunities" (N = 30) on Year 2 survey.

School Leavers (Alternate Survey; 1B in Figures 2 and 3)

An alternate survey was developed and administered in Winter 2009 for the subgroup of students who had participated in the survey as high school seniors in the POS during the initial Spring 2009 data collection but who did not appear on college POS enrollment lists the following Fall. The purpose of this follow-up survey was to find out the education and job status of those students who had not enrolled in the expected POS at the college level and reasons for deviation from expectations. Invitations and regularly spaced reminders were sent automatically through Survey Monkey directly to the email addresses students had provided on their 1st round survey. Out of 87 eligible students, the 14 participants who completed the survey (17%) each received a \$35 Amazon.com gift certificate. The following findings only apply to the responding sample. Only 1 of the 14 students who responded was not employed or in school and had no definitive plans to return to either. Twelve were in school either full- or part-time, either in two-year colleges or four-year universities. Four of these students (all from one site) were in fact enrolled at one of the postsecondary institutions participating in our study, just not in the same POS that they started in high school.

Table 31
Status of Alternate Survey Participants

| Status | Number Responding | Percent |
|------------------------------|-------------------|---------|
| Student (full or part-time) | 10 | 71.4 |
| In school and employed | 2 | 14.3 |
| Unemployed and not in school | 1 | 7.1 |

Note. One other student was unemployed and not in school but planned to enroll in community college in the next few months at the time of this survey.

Table 32

Participants' Report of Plans After High School and Expected Credential or Degree Over Two Years: Number (Percent)

| Credential | Plans after HS (from HS survey) ⁹ | Credential expected in current program (from alternate survey) |
|--|---|---|
| High school diploma | N/A | 1 (7.7) |
| Enroll in technical or trade school/ | 1 (7.7) | 3 (23.1) |
| Earn training or skills certificate | | |
| Enroll in 2 year college/ Earn Associate's degree | 5 (38.5) ¹⁰ | 6 (46.2) |
| Enroll in university/Earn 4 year degree | 5 (38.5) | 3 (23.1) |

Note. Displaying responses between the following items from high school survey and alternate survey respectively: "What is the main thing you plan to do the year after graduation from high school" and "What credential/degree is expected in the program currently enrolled in".

Three-quarters (9) of the alternate survey participants' responses about the field they see themselves in at age 30 were consistent with their high school response (in some cases, the POS they were enrolled in did not match their interests because their desired POS was not offered at the high school they attended).

Table 33

Alternate Survey Participants POS at Time of High School Survey and Career Aspirations

| | From HS Survey | | From alternate survey |
|--|--|--|--------------------------------------|
| POS in HS | Desired POS (if enrolled POS is not first choice) | Desired career field at age of 30 | Desired career field at age of 30 |
| Hospitality & Tourism | N/A | Not sure | Health care |
| Business | N/A | Financial manager or business owner | Business Mgmt & Admin |
| Film | Law | Firefighter | Public Safety & Corrections |
| Film Tech | N/A | Graphic Design | Arts, Audio-Video, Communications |
| Automotive | Engineering | Engineer | STEM |
| Film/Graphic design | N/A | Film & Photo | Arts, Audio-Video, Communications |
| Industrial Maintenance/Machine tools | Mechatronics | Don't know | Arts, Audio-Video, Communications |
| Automotive | N/A | Mechanic at own shop | Transportation (Auto Mechanic) |

⁹ One high school participant planned to get a job after high school and another to join the military (not displayed in the table since at the time of the alternate survey, all participants fit one of the existing table categories).

¹⁰ Three of these participants indicated they planned to transfer to a 4 year college.

| | | | |
|------------|---------------|-------------------|---------------------------------------|
| Media/Film | Culinary Arts | Vegan baker | Agriculture, Food & Natural Resources |
| Radiology | N/A | Radiologist | STEM (MRI Technician) |
| Automotive | N/A | Owning a business | Business Mgmt & Admin |
| Not sure | Engineering | Not sure | STEM |

Most students who completed the alternate survey agreed that their high schools adequately prepared them for college (9) and/or work (11; see Table 34). However, increased rigor was a common recommendation for what could have made their preparation better (e.g., “more homework,” “making it harder,” “stricter deadlines”).

Table 34
Alternate Survey Participants' Report on Preparation for College and Work: Number (Percent)

| My high school adequately prepared me for... | Strongly agree | Agree | Disagree | Strongly disagree |
|--|----------------|-----------|----------|-------------------|
| College | 1 (8.3) | 8 (66.7) | 2 (16.7) | 1 (8.3) |
| Work | 1 (8.3) | 10 (83.3) | 0 (0.0) | 1 (8.3) |

Note. N = 12

First Year College (2A in Figures 1 and 2)

Online surveys were administered to all college students in the POS of interest in Fall 2009 (2A in Table 2 and Figures 2 and 3). In addition to questions about students' college experiences thus far, the college survey covered employment and retrospective questions about career planning during high school. Potential college participants were identified by obtaining enrollment lists for the POS of interest from the three participating colleges. Recruitment efforts focused on all students in the POS of interest at the college level, those who may have attended one of the feeder high schools where survey data was collected as well as those who did not attend one of the participating high schools.¹¹ Invitations and regularly spaced reminders were sent automatically through Survey Monkey directly to students' email addresses. Participants (N = 85) were entered in a lottery for either a \$100 gift certificate or a \$50 gift certificate to Amazon.com.¹²

Fewer students transitioned from the high school to the college portion of the POS than expected. Of students who participated in our study as seniors in high school (N=94), a total of 16 students (17%) across the 3 sites were enrolled in college in the same POS in the Fall of 2009, according to the colleges' enrollment rosters.¹³ Of these 16 students, only 2 (13%) completed our survey, despite reminders and incentives. (The remaining students who took the survey in the college

¹¹ This allows for a natural comparison group for later analyses.

¹² The incentive structure changed later in the study in an attempt to increase the response rate.

¹³ The 16 are only from River and Northern sites; no 2009 high school participants from Desert were enrolled at the college in the POS of interest by Fall 2009 (see Figure 3). This may be because Desert College is larger and has more options for students to choose from, in addition to the majority of Desert high school participants participating as juniors in the first high school survey (they were still in high school in Fall 2009).

POS had either come from different POS at the participating high school, another high school, or were older and returning to college from the workplace; we have since removed the latter from our pool.¹⁴⁾

Thus, unlike the Year 2 high school participants, college survey participants ($N = 85$) were mostly new participants in the study (i.e., primarily not the same sample that participated in the first round of the high school survey). We had been hoping that there might be roughly equal numbers of students in the college POS who had attended one of the participating high school POS and who had not, so that comparisons could be made. Although survey data may not provide opportunities for such comparisons, we are collecting and analyzing college systems data to accomplish the same purpose.

Table 35
Gender of College Survey Participants

| Gender | Number Reporting | Percent |
|--------|------------------|---------|
| Male | 51 | 60.7 |
| Female | 33 | 39.3 |

Note. $N = 84$ (98.8%).

The majority of students who took the college survey were full-time students in the process of earning their Associate's degree (see Tables 36 and 37). About half (51%) of participating college students were not employed at the time this survey was administered (see Table 38).

Table 36
College Student Enrollment Status

| Student status | Number Reported | Percent |
|----------------|-----------------|---------|
| Full time | 61 | 72.6 |
| Part time | 22 | 26.2 |
| Other | 1 | 1.2 |

$N = 84$ (98.8%).

Table 37
College Students' Report of Credential Seeking in College

| Credential | Number Reported | Percent |
|--------------------------------|-----------------|---------|
| Technical or skill certificate | 15 | 18.1 |
| Associate's degree | 66 | 79.5 |
| Other | 2 | 2.4 |

$N = 83$ (97.6%).

¹⁴⁾ However, the sample for the first round college survey likely include some participants who are older students

Table 38
College Students' Report of Employment Status

| Employment status | Number Reported | Percent |
|-------------------|-----------------|---------|
| Full-time | 12 | 14.1 |
| Part-time | 26 | 30.6 |
| Not employed | 43 | 50.6 |
| Other | 4 | 4.7 |

Note. N = 85 (100%)

When applying to college programs, students were more likely to have received help on filling out applications or financial aid forms (48% each) than help writing essays (15%; see Table 39). Over half (56%) of college students who responded to the question felt adequately prepared for the transition from high school to college. A larger percentage (62%) felt academically prepared for college studies. See Table 40. However, almost half (47%) of college students reported that they were required to take remedial courses in college.¹⁵

Table 39
College Students' Report of Help Received in Applying to College: Number (Percent)

| Type of help | Yes | No | Don't remember |
|---|-----------|-----------|----------------|
| Filling out college or technical school applications | 41 (48.2) | 40 (47.1) | 4 (4.7) |
| Writing essays for college or technical school applications | 12 (14.6) | 65 (79.3) | 5 (6.1) |
| Filling out financial aid forms | 38 (47.5) | 38 (47.5) | 4 (5.0) |

Note. N = 85 (100%) for all items except "filling out financial aid forms" (N = 80, 94.1%)

Table 40
College Students' Perspectives on Preparedness for College: Number (Percent)

| | Very prepared | Prepared | Somewhat unprepared | Very unprepared |
|---|---------------|-----------|---------------------|-----------------|
| I was adequately prepared for the transition to college | 16 (18.8) | 32 (37.6) | 22 (25.9) | 15 (17.6) |
| I was academically prepared for college studies | 13 (15.7) | 38 (45.8) | 22 (26.5) | 10 (12.0) |

Note. N = 85 (100%) for "transition to college" and N = 83 (97.6%) for "college studies".

¹⁵ A chi-squared analysis revealed no significant difference between students who were required to take remedial classes and those who were not in feelings of either being adequately prepared for the college transition or being academically prepared for college level studies. In fact, the majority (64%) of students who reported needing to take remedial classes (47% of the sample) reported that they felt prepared or very prepared for the transition to college, and half (50%) reported being prepared or very prepared academically for college studies.

College students in this survey had mostly positive opinions about how well their high school prepared them for college or work. The majority (75%) of those who responded to the question agreed or strongly agreed that the content of their classes was relevant for the real world, and 64% agreed or strongly agreed that career guidance was made available to them. However, only 37% agreed or strongly agreed that they had clear career direction while in high school (recall that the majority of these respondents were not part of the high school POS we studied). College students had the most favorable opinions of the writing and science skills their high school education provided them. Opinions on math skills and speaking skills provided by high schools were also favorable. Slightly less than half of students responded that they received the needed computer skills to be successful. Over half of college students who responded to questions about their CTE training in high school had positive perceptions of the skills and competencies they have gained.

Table 41
College Students' Perspectives on High School: Number (Percent)

| Thinking back to high school experiences... | Strongly agree | Agree | Disagree | Strongly disagree |
|---|----------------|-----------|-----------|-------------------|
| Some of the course content had a relationship to the real world | 18 (22.2) | 43 (53.1) | 16 (19.8) | 4 (4.9) |
| I felt I had clear career direction | 9 (11.1) | 21 (25.9) | 35 (43.2) | 16 (19.8) |
| Career guidance was available to me | 11 (13.8) | 40 (50.0) | 20 (25.0) | 9 (11.3) |
| My HS program gave me the math skills I needed to be successful at college or work | 17 (21.3) | 33 (41.3) | 19 (23.8) | 11 (13.8) |
| My HS program gave me the computer skills I needed to be successful at college or work | 12 (15.0) | 26 (32.5) | 28 (35.0) | 14 (17.5) |
| My HS program gave me the science skills I needed to be successful at college or work | 14 (17.3) | 40 (49.4) | 20 (24.7) | 7 (8.6) |
| My HS program gave me the writing skills I needed to be successful at college or work | 16 (19.8) | 42 (51.9) | 18 (22.2) | 5 (6.2) |
| My HS program gave me the speaking skills I needed to be successful at college or work | 11 (13.6) | 37 (45.7) | 24 (29.6) | 9 (11.1) |

Note. N = 80-81 for each item (94-95% response rate).

Twelve percent or less of college students reported participating in any type of work-based learning experience during high school, in contrast to the high school sample where 8% - 26% of high school students reported participating in some type of work-based learning experience. About 76% of college students who responded to the question had no involvement in CTSOs, either currently or previously (see Tables 42 and 43).

Table 42

College Students' Reports of Participation in WBL During High School

| During high school, I participated in... | Number reporting | Percent |
|--|------------------|---------|
| An internship | 2 | 2.4 |
| Co-op | 9 | 10.6 |
| Job shadowing or work site visits | 8 | 9.4 |
| Mentoring | 3 | 3.5 |
| Community service | 10 | 11.8 |
| School-based enterprise | 5 | 5.9 |
| None of these | 52 | 61.2 |

Table 43

College Students' Involvement in CTSOs

| CTSO | Number Reported | Percent |
|-----------|-----------------|---------|
| FFA | 3 | 4.3 |
| DECA | 6 | 8.6 |
| FBLA | 1 | 1.4 |
| TSA | 1 | 1.4 |
| SkillsUSA | 6 | 8.6 |
| None | 53 | 75.7 |

Note. Response rate = 82%. Only CTSOs selected by students are included in this table (the range of choices presented is not included).

Over half of college students who responded to questions about their CTE training in high school had positive perceptions of the skills and competencies they have gained. Specifically, 59% - 66% of responders agreed or strongly agreed with each of the items in Table 44 below, except for "it helped me to get a job" (30% agreed or strongly agreed). This is perhaps to be expected, because college students are pursuing further education *beyond* high school in order to be more competitive for the job market. Additionally, only about half of the college sample was employed at the time of this survey. Detailed findings on employed college students appear later in this report.

Table 44

College students' perspectives on CTE training in high school: Number (Percent)

| During my CTE training in high school... | Strongly agree | Agree | Disagree | Strongly disagree |
|--|----------------|-----------|-----------|-------------------|
| I learned to work as part of a team | 16 (23.5) | 29 (42.6) | 15 (22.1) | 8 (11.8) |
| I learned to work with diverse groups of people | 11 (16.2) | 32 (47.1) | 17 (25.0) | 8 (11.8) |
| I gained knowledge of technical terms | 10 (14.7) | 32 (47.1) | 20 (29.4) | 6 (8.8) |
| I learned about the types of jobs available in the field | 8 (11.9) | 30 (44.8) | 21 (31.3) | 8 (11.9) |
| I gained hands-on experience | 10 (14.9) | 32 (47.8) | 19 (28.4) | 6 (9.0) |

| | | | | |
|--|-----------|-----------|-----------|-----------|
| It helped me to get a job | 4 (6.1) | 16 (24.2) | 31 (47.0) | 15 (22.7) |
| It helped me decide to continue my education after high school | 12 (18.2) | 27 (40.9) | 19 (28.8) | 8 (12.1) |

Note. Response rate = 78 - 80% for these items.

About 10% of the sample on average reported earning college credit while in high school, mostly through dual credit options at their high school, taking classes at a community college while still in high school, or taking AP classes.

Table 45
College Students' Reports of Earning College Credit While in High School

| In high school, I earned college credit by... | Number reporting | Percent |
|---|------------------|---------|
| Taking college credit classes at my high school | 12 | 14.1 |
| Taking college credit classes at a community or technical college | 11 | 12.9 |
| Taking AP courses | 10 | 11.8 |
| Taking college credit classes at a local 4 year college | 2 | 2.4 |

Across the board, the largest numbers of college students reported parents as the most helpful individuals to turn to for discussing various school and career-related topics during high school (32% - 52%). In fact, after parents, college students mostly reported that no one was helpful (18% - 31%). Only teachers were seen as more helpful than “no one” for discussing things studied in class and grades, after parents (29% and 31% respectively).

Table 46
College Students' Reports of Most Helpful Individuals for Education & Career-Related Issues: Number (Percent)

| Who was most helpful on the following topics? | Parent/Guardian | Teacher | Counselor | CTSO Advisor | Boss or work colleague | No one |
|---|-----------------|-----------|-----------|--------------|------------------------|-----------|
| What courses to take | 27 (31.8) | 19 (22.4) | 20 (23.5) | 1 (1.2) | 1 (1.2) | 24 (28.2) |
| Going to college | 42 (49.4) | 15 (17.6) | 16 (18.8) | 2 (2.4) | 3 (3.5) | 19 (22.4) |
| Possible careers when you are an adult | 39 (45.9) | 12 (14.1) | 13 (15.3) | 3 (3.5) | 2 (2.4) | 21 (24.7) |
| Personal problems | 42 (49.4) | 7 (8.2) | 4 (4.7) | 0 (0.0) | 3 (3.5) | 23 (27.1) |
| School activities or events of interest | 35 (41.2) | 14 (16.5) | 6 (7.1) | 1 (1.2) | 2 (2.4) | 26 (30.6) |
| Things studied in class | 36 (42.4) | 25 (29.4) | 4 (4.7) | 0 (0.0) | 5 (5.9) | 16 (18.8) |
| Grades | 45 (52.9) | 26 (30.6) | 7 (8.2) | 1 (1.2) | 1 (1.2) | 15 (17.6) |
| Finding a job after high school | 37 (43.5) | 10 (11.8) | 5 (5.9) | 3 (3.5) | 2 (2.4) | 25 (29.4) |
| Steps necessary to pursue your career | 31 (36.5) | 16 (18.8) | 14 (16.5) | 4 (4.7) | 2 (2.4) | 25 (29.4) |
| Applying for college or technical school | 42 (49.4) | 12 (14.1) | 13 (15.3) | 3 (3.5) | 2 (2.4) | 21 (24.7) |

Most college students reported having at least some knowledge of different aspects of their

chosen careers. However, the majority (72%) of college students who responded to the question reported thinking differently about their desired career, compared to their ideas at the end of high school. See Tables 47 and 48.

Table 47
College Students' Knowledge of Future Job Characteristics: Number (Percent)

| Thinking about the job you would like to have after completing your education, how much knowledge do you have of... | A great deal of knowledge | A good deal of knowledge | Some knowledge | Little or no knowledge |
|---|---------------------------|--------------------------|----------------|------------------------|
| What people really do on the job | 24 (33.3) | 29 (40.3) | 16 (22.2) | 3 (4.2) |
| Abilities needed for the job | 26 (36.1) | 28 (38.9) | 17 (23.6) | 1 (1.4) |
| Working conditions | 28 (38.9) | 29 (40.3) | 14 (19.4) | 1 (1.4) |
| Education or training needed to get such a job | 30 (41.1) | 31 (42.5) | 10 (13.7) | 2 (2.7) |
| Need for people in this line of work in the future | 21 (29.2) | 33 (45.8) | 14 (19.4) | 4 (5.6) |
| Different ways of getting into the job | 15 (20.8) | 27 (37.5) | 22 (30.6) | 8 (11.1) |
| Chances of advancing in this job | 15 (20.8) | 30 (41.7) | 20 (27.8) | 7 (9.7) |
| What sort of working day and week to expect | 23 (32.4) | 27 (38.0) | 17 (23.9) | 4 (5.6) |

Note. Response rate = 84 - 86%.

Table 48
College students' Reports of Career Choice Changes Since Leaving High School

| Compared to when you were finishing up HS, do you have different ideas now about the kind of career you might want? | Number Reporting | Percent |
|---|------------------|---------|
| Yes | 53 | 71.6 |
| No | 18 | 24.3 |
| Don't know | 3 | 4.1 |

Note. Response rate = 87%.

Employed College Students

Employed college students were fairly equally divided over agreement vs. disagreement that their high school education adequately prepared them for their current job. See Table 49. A quarter of employed students reported taking classes in high school that provided them with specific skills needed for their current jobs.

Table 49

Employed College Students' Reports of Whether or Not High School Provided Adequate Job Preparation: Number (Percent)

| | Strongly agree | Agree | Disagree | Strongly disagree |
|--|----------------|-----------|-----------|-------------------|
| High school adequately prepared me for my current job | 9 (22.5) | 13 (32.5) | 9 (22.5) | 9 (22.5) |
| High school adequately prepared me with the skills I need for my current job | 8 (20.0) | 13 (32.5) | 11 (27.5) | 8 (20.0) |

Note. Only employed students responded to these items (40% of the sample).

In general, employed students had favorable opinions of their jobs. Slightly over half (55%) of employed college students agreed or strongly agreed that their jobs match what they like to do, and the majority agreed or strongly agreed that their work is meaningful (68%) and that they are learning things that will be useful later in life (65%). The majority (78%) of students also agreed or strongly agreed that their current jobs provide opportunities to use skills and abilities they possess, and half of students agreed or strongly agreed that their job provides advancement opportunities. However, half of students also agreed or strongly agreed that they are overqualified for their current job, and less than half (40%) indicated that their current job has influenced their career choice. Slightly more than a quarter (28%), were concerned about being laid off as well as agreeing or strongly agreeing that their job had gotten in the way of education. On the other hand, 43% agreed or strongly agreed that their job had actually helped them get more education or training.

Table 50

Employed College Students' Opinions About Their Job: Number (Percent)

| | Strongly agree | Agree | Disagree | Strongly disagree |
|--|----------------|-----------|-----------|-------------------|
| My job allows me to use my skills and abilities | 7 (17.5) | 24 (60.0) | 6 (15.0) | 3 (7.5) |
| My job matches what I like to do | 7 (17.5) | 15 (37.5) | 14 (35.0) | 4 (10.0) |
| I am overqualified for the work I do in my job | 8 (20.0) | 12 (30.0) | 17 (42.5) | 3 (7.5) |
| My job gives me opportunities for advancement | 4 (10.0) | 16 (15.8) | 16 (15.8) | 4 (10.0) |
| I feel that my work is meaningful and important | 9 (23.1) | 18 (46.2) | 11 (28.2) | 1 (2.6) |
| In my job I learn things that will be useful to me later in life | 8 (20.0) | 18 (45.0) | 13 (32.5) | 1 (2.5) |
| My job has influenced my career choice | 4 (10.0) | 12 (30.0) | 14 (35.0) | 10 (25.0) |
| I am concerned that I might be laid off from my job | 3 (7.5) | 8 (20.0) | 12 (30.0) | 17 (42.5) |
| My job has helped me get more education and training | 5 (12.5) | 12 (30.0) | 17 (42.5) | 6 (15.0) |
| My job has gotten in the way of getting the | 3 (7.5) | 8 (20.0) | 17 (42.5) | 12 (30.0) |

education/training I would like to get

Note. Only employed students responded to these items. $N = 40$ for all items except “my work is meaningful and important” ($N = 39$).

Less than half (45%) of employed college students agreed that their current jobs were related to either their major or their desired job in 5 years. However, this was an increase from those in the high school sample who held paid jobs. During the first round high school survey, less than a quarter (21%) of employed high school students agreed that their jobs were related to their future careers.

Table 51

Employed College Students’ Opinions About Relevance of Current Job to Education and Future Career: Number (Percent)

| | Closely related | Somewhat related | Not related at all |
|---|-----------------|------------------|--------------------|
| Job relevance to college program or major | 10 (25.0) | 8 (20.0) | 22 (55.0) |
| Job relevance to desired job in 5 years | 9 (22.5) | 9 (22.5) | 22 (55.0) |

Note. $N = 40$

The second round of college survey data (2B in Figures 2 and 3) is currently being collected, and these data will shed further light on the pathways and experiences of college students in these POS. Potential participants for this survey include all students enrolled in the POS of interest at the college level. Site visits were conducted at all three sites in Winter 2010 - 11 first to administer the survey to as many students as possible in-person, because we found that this method yields a higher response rate.¹⁶ Those students on college enrollment lists for the POS of interest at the college who were not present or who otherwise did not take the survey in person during the site visit are being targeted for recruitment for an online version of the survey with a similar invitation and reminder schedule as the first college survey and the alternate survey. All college participants in this round received or will be receiving a \$25 Amazon.com gift certificate. In addition, an alternate survey is being sent via Survey Monkey to those who participated in the study in prior years but were not enrolled at the college in 2010-11 (3A in Figures 2 and 3). These respondents will also be offered a \$25 Amazon.com gift card for completing the survey. The final round of survey data collection (3b and 2c in Figure 2; not shown in Figure 3) will be occurring in Fall 2011. Recruitment efforts for this final phase will be focused on individuals who have previously taken a version of the survey. It is expected that these students will either still be enrolled in college or will have earned a degree or credential and gone on to seek further education or employment, and survey questions will follow skip patterns to accommodate the range of possible activities.

Limitations

This study only focused on selected POS within three unique sites. Results thus cannot be generalized to POS elsewhere. Further, low survey response rates also minimize the extent to

¹⁶ This study has been challenged by low response rates, which is one reason for the varied survey administration formats and incentive structures.

which conclusions can be drawn about the POS in this study. Low response rates were primarily due to administering the survey online; one reason we believe our response rate with this format is so low is that this population (community college students, almost half of whom are minority, primarily enrolled in skilled trades fields) does not seem to use email frequently; according to interviews with college administrators and faculty, students' time and energy is likely spent working at jobs, doing class assignments, and tending to family. We have determined that on-site administration and immediate distribution of incentives to all participants, which we did in Round 3) is much more effective. Although this Year 3 report focuses on student perspectives, it should be noted that this is not the primary focus of the overall research study. Rather, student surveys supplement the qualitative findings, which use case studies and backwards mapping to illustrate the structure of these mature POS, to be presented in next year's report.

Conclusions from Student Surveys

Although we were unable to obtain high response rates from original high school participants who were continuing on their POS pathway, less than half of the students at each site, ranging from 7% at Desert to 40% at River, were actually making the transition from high school to college within the same POS to begin with. It appears that even when a POS is well-established and "mature," it does not necessarily guarantee that students will continue to progress through it; career interests and college and work decisions are still in flux at this point in students' lives. These findings may also demonstrate that the high school to college transition is not linear, particularly when the number of options for possible career fields increases greatly when students get to college. It is not surprising that students may go in other directions. This does not indicate that the POS studied are not successful in preparing students for postsecondary education or facilitating decision making around career paths. Although the alternate survey responses (sent to those not in the selected POS at the participating college) are not representative, we can cautiously conclude that among those who responded it seems students are graduating high school and enrolling in programs at other schools, changing their minds about their majors, or taking classes at the expected college without formally enrolling in the same POS they were in during high school.

Despite a lack of clear evidence for students actively transitioning into the postsecondary level of their POS, high school participants reported generally positive opinions about their POS experience, as did college participants when asked to reflect back on their CTE training in high school. The measure of success of POS may not necessarily be the rate at which students are guided into career paths during high school, but the capacity these programs have for providing students with the ability to make future educational and career decisions using the skills they gained through participation in POS. According to the survey findings in this study, POS students have positive feelings about school and confidence in career planning. If these are intended outcomes of the POS legislation, then whether or not the student continues in that same career path or chooses another may be less important.

Both rounds of high school participants and college participants reported that their parents were the most helpful when planning for academic success and the transition to college and career. This pattern of relying on parents for guidance regarding education and career planning seems to persist into the college years, when students might not be living at home anymore and would

typically be exposed to other sources of education and career planning assistance. It is therefore critical to place a greater focus on equipping parents to be as knowledgeable and supportive as possible in guiding students in their education and career-related decisions, given that students appear to consistently rely on them for this type of information.

Although many students were taking advantage of dual credit opportunities, fewer than half knew whether dual credit courses were offered in their POS. This is despite the fact that each of the sites were in part selected because they offered dual credit to students. These findings suggest that POS students are not receiving adequate course guidance in high school—a conclusion supported by on-site interviews with counselors (reported in Year 2), who revealed that they did not always have necessary information about the POS to share with students.

Neither high school students nor college students were receiving much work-based learning, and those who were working for pay for the most part reported that their jobs had little to do with their chosen careers.

The students who participated in our surveys are, arguably, receiving better CTE programming than sites without mature POS in place. Furthermore, those students responding to the online surveys and those who responded to more than one round of survey administration are presumably a self-selected motivated group. Yet these students are still not being prepared as well as envisioned by those who shaped Perkins IV. As POS are further developed in the field and further clarified by OVAE and Congress, the findings from this study suggest that it is critical to ensure that both students and parents receive increased information and guidance from school and college staff regarding education and career options. Ensuring that available work options for students while they are in school are at least somewhat related to students' course of study may also be warranted.

References

- Bailey, T. R., & Karp, M. M. (2003). *Promoting college access and success: A review of credit-based transition programs*. New York, NY: Columbia University, Teachers College, Community College Research Center and Institute on Education and the Economy.
- Bragg, D. D., Loeb, J. W., Gong, Y., Deng, C.-P., Yoo, J.-s., & Hill, J. L. (2002). *Transition from high school to college and work for Tech Prep participants in eight selected consortia*. St. Paul, MN: National Research Center for Career and Technical Education. (PDF 1,183KB)
- Castellano, M., Stringfield, S., & Stone III, J. R. (2003). Secondary career and technical education and comprehensive school reform: Implications for research and practice. *Review of Educational Research*, 73, 231–272.
- Castellano, M., Stone, J.R. III., Stringfield, S.C., Farley-Ripple, E.N., Overman, L.T. & Hussain, R. (2007). *Career-based comprehensive school reform: Serving disadvantaged youth in minority communities*. St. Paul, MN: National Research Center for Career and Technical Education. (PDF, 3,134KB)
- Creswell, J. W. (2005). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Merrill Prentice Hall
- Elmore, R. F. (1980). Backward mapping: Implementation research and policy decisions. *Political Science Quarterly*, 94, 601-616.
- Karp, M. M., Calcagno, J. C., Hughes, K. L., Jeong, D. W., & Bailey, T. R. (2007). *The postsecondary achievement of participants in dual enrollment: An analysis of student outcomes in two states*. St. Paul, MN: National Research Center for Career and Technical Education.
- Lekes, N., Bragg, D. D., Loeb, J. W., Oleksiw, C. A., Marszalek, J., Brooks-LaRaviere, M., Zhu, R., Kremidas, C. C., Akukwe, G., Lee, H-J. & Hood, L. K. (2007). *Career and technical education pathway programs, academic performance, and the transition to college and career*. St. Paul, MN. National Research Center for Career and Technical Education.
- Lewis, M. V., & Kosine, N. R. (with Overman, L.). (2008). *What will be the impact of programs of study? A preliminary assessment based on similar previous initiatives, state plans for implementation, and career development theory*. Louisville, KY: National Research Center for Career and Technical Education, University of Louisville.
- Pierce, D. R. (2001). *Student Pathways from High School to College*. Denver, CO: Education Commission of the States.
- Recceso, A. M. (1999). First year implementation of the School to Work Opportunities Act Policy: An effort at backward mapping. *Education Policy Analysis Archives*, 7 (11). Retrieved from: <http://epaa.asu.edu/epaa/v7n11.html>.
- Soy, S. (1997). *The case study as a research method*. Retrieved from <http://www.gslis.utexas.edu/~ssoy/usesusers/l391d1b.htm>.
- U.S. Department of Education, Office of the Under Secretary, Policy and Program Studies Service. (2004). *National Assessment of Vocational Education: Final Report to Congress: Executive Summary*, Washington, DC: Author.
- Yin, R. K. (2009). *Case Study Research: Design and Methods* (4th Ed.). Los Angeles, CA: Sage.

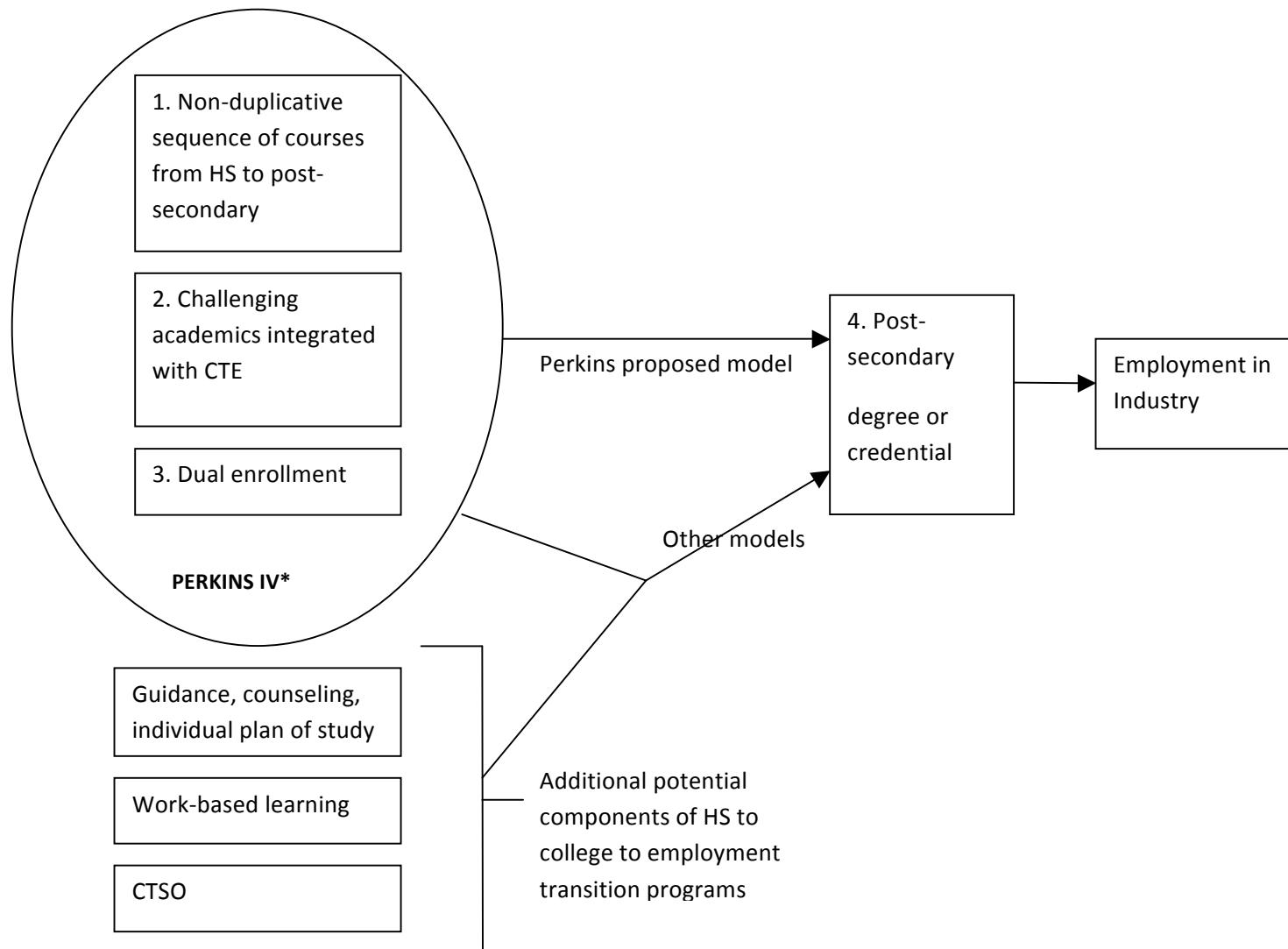


Figure 1. Conceptual framework for Programs of Study. The numbered boxes are the four required components of Programs of Study in the Perkins IV legislation.

Figure 2. Data collection progress and current status.

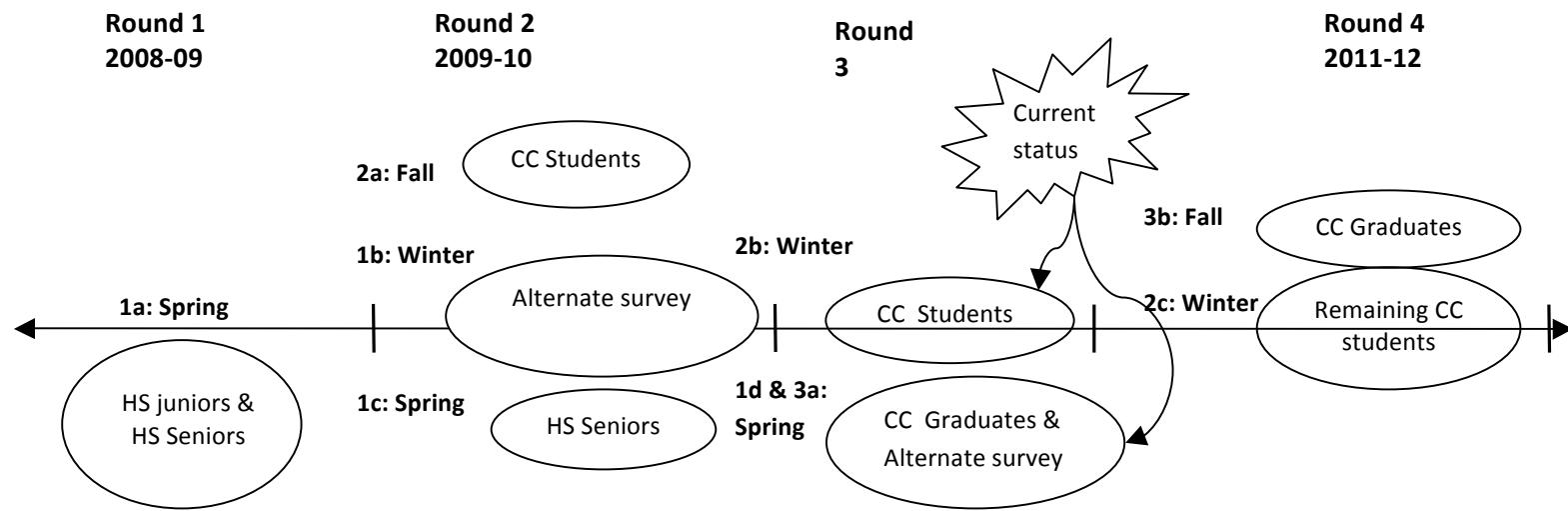


Figure 3. Design, sample, and response rates by site.

