Bridging College and Careers: Using Dual Enrollment to Enhance Career and Technical Education Pathways

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Motivation for Integrating Dual Enrollment into CTE Pathways

- Social and economic benefits to obtaining a postsecondary credential and the national “Completion Agenda”.
  - Critical to target low income and minority students who traditionally have low levels of college access, retention, and completion.

- CTE is a mechanism by which high school students can engage in learning that connects to the real world.
  - Research suggests that CTE programs may play a role in reducing high school dropout rates (CA DoE, 2010; Kazis, 2005, Stern & Stearns, 2006).
  - However, there is limited empirical evidence on the effectiveness of CTE in promoting college success.

- Dual enrollment is a program in which high school students enroll in college courses and earn college credit.
  - DE is positively related to high school graduation, college enrollment, credit accrual, persistence, and pursuing a bachelors degree (Michalowski, 2007; Speroni 2011; Swanson, 2007).
  - Evidence suggests that participants of CTE focused DE are more likely to enter and persist in college and earn higher grades once there (Karp, et al. 2007).
Concurrent Courses Initiative: Pathways to College and Careers

Funded by the James Irvine Foundation and U.S. Department of Education

• Builds on the theoretical and empirical base supporting the notion of career-focused dual enrollment as a promising college transition strategy.

• During 2008 and 2009 academic years, Concurrent Courses Initiative (CCI) supported 8 secondary/postsecondary partnerships across the state of CA as they developed, enhanced and expanded career-focused dual enrollment programs.

• The goal was to strengthen college and career pathways for low-income youth who were struggling academically or who were within populations historically underrepresented in higher education.
CCI Partnerships

- Range of career foci.
- Academic and CTE course options.
- Variation in type of credit students can earn.

<table>
<thead>
<tr>
<th>Site</th>
<th>Career Focus</th>
<th>Course Options</th>
<th>Credit Earning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site A</td>
<td>Multiple</td>
<td>Academic/CTE</td>
<td>Dual credit</td>
</tr>
<tr>
<td>Site B</td>
<td>Multiple</td>
<td>CTE</td>
<td>Dual credit</td>
</tr>
<tr>
<td>Site C</td>
<td>Nursing</td>
<td>Academic/CTE</td>
<td>Dual credit</td>
</tr>
<tr>
<td>Site D</td>
<td>Multimedia</td>
<td>CTE</td>
<td>Dual credit</td>
</tr>
<tr>
<td>Site E</td>
<td>Teaching</td>
<td>Academic/CTE</td>
<td>College credit</td>
</tr>
<tr>
<td>Site F</td>
<td>Health</td>
<td>Academic/CTE</td>
<td>Dual credit</td>
</tr>
<tr>
<td>Site G</td>
<td>Architecture, Construction &amp; Engineering</td>
<td>Academic/CTE</td>
<td>College credit</td>
</tr>
<tr>
<td>Site H</td>
<td>Technology</td>
<td>CTE</td>
<td>Dual credit</td>
</tr>
</tbody>
</table>
CCI Student Supports

• Crucial feature of the Initiative, particularly given the target population.
• Supports provided before as well as during course enrollment.
• Academic and non-academic services (8):
  – Orientation (initiative, college, and/or career)
  – Academic preparation and/or support
  – Work-based learning
  – Leadership activities
  – Supplemental financial support
Research Questions and Data

- **Research Questions**
  - Is the program reaching the intended students?
  - What are students’ participation patterns?
  - What are participants’ short- and medium-term academic outcomes?

- **Data**
  - Administrative data provided through Cal-PASS.
  - Student background, academic achievement, and high school and college course taking.
  - Custom data file collects data on students’ CCI experiences.
  - DE course location, type of instructor, support services received.
Methodology

• Descriptive statistics on participation and performance in CCI dual enrollment courses.

• Regression analysis with controls and propensity score matching.

\[ Y_{k,c+j} = \alpha + \beta DE_t + \gamma_f X_f + \theta_f TEST + \varepsilon_i \]

- **Treatment (DE):** Taking a CCI dual enrollment course.
- **Outcomes (Y):** High school GPA; high school graduation; college enrollment; basic skills course-taking, college credits completed, and persistence.
- **Covariates (X):** Gender, race/ethnicity, primary language spoken at home, parental education, grade level and prior ability (TEST) as measured by pre-treatment standardized test scores and GPA.
- **Cohort** and **Site** fixed effects were also included for pooled samples.
Results: Enrollment in CCI

• CCI reached students of target population.

• Across all CCI sites:
  – About two-thirds are Latino, African American, or Asian.
  – Language minority students represent about 40% of students served.
  – One-third of students are first generation college-going.

• There exists variation by site in enrollment by gender, average test scores, and high school GPA.
Results: Participation and Performance

2008-2009
- 1,594 dual enrollees across 6 sites
- 97% received supplemental support
- On average, students took 1.2 DE courses
- 87% passed their DE courses
- 64% taught by college professors
- 39% taught on a college campus

2009-2010
- 1,885 dual enrollees across 8 sites
- 99% received supplemental support
- On average, students took 1.3 DE courses
- 86% passed their DE courses
- 72% taught by college professors
- 31% taught on a college campus

- No clear pattern in terms of relationship between course instructor and location and course passing rates
## Results: High School and College Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pooled across Graduating Classes &amp; Sites</th>
<th>Pooled across sites Graduating Class of 2009</th>
<th>Pooled across sites Graduating Class of 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School GPA</td>
<td>0.007</td>
<td>0.026</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.019)</td>
<td>(0.020)</td>
</tr>
<tr>
<td>High School Graduation</td>
<td>0.141***</td>
<td>0.140***</td>
<td>0.076**</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.020)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>College Enrollment</td>
<td>0.011</td>
<td>0.103*</td>
<td>-0.066</td>
</tr>
<tr>
<td></td>
<td>(0.042)</td>
<td>(0.057)</td>
<td>(0.061)</td>
</tr>
<tr>
<td>Four-year College Enrollment</td>
<td>0.161***</td>
<td>0.226***</td>
<td>0.094</td>
</tr>
<tr>
<td></td>
<td>(0.056)</td>
<td>(0.075)</td>
<td>(0.083)</td>
</tr>
<tr>
<td>College Credits after 1 year</td>
<td>2.99***</td>
<td>1.69**</td>
<td>3.04***</td>
</tr>
<tr>
<td></td>
<td>(0.580)</td>
<td>(0.790)</td>
<td>(0.860)</td>
</tr>
<tr>
<td>Persistence to 1 year</td>
<td>0.166**</td>
<td>0.038</td>
<td>0.020</td>
</tr>
<tr>
<td></td>
<td>(0.079)</td>
<td>(0.101)</td>
<td>(0.125)</td>
</tr>
<tr>
<td>College Credits after 2 years</td>
<td>-</td>
<td>4.632***</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>(1.12)</td>
<td>-</td>
</tr>
<tr>
<td>Persistence to 2 years</td>
<td>-</td>
<td>0.315***</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>(0.094)</td>
<td>-</td>
</tr>
<tr>
<td>Covariates</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Cohort Fixed Effects</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Site Fixed Effects</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sample Size - one year outcomes</td>
<td>10,478</td>
<td>4,598</td>
<td>6,295</td>
</tr>
<tr>
<td>Sample Size - two year outcomes</td>
<td>-</td>
<td>3,745</td>
<td>-</td>
</tr>
</tbody>
</table>
Conclusion

• This study finds evidence supporting the notion of career-focused dual enrollment with supports is a promising college transition strategy.

• Curricular pathways were a key factor.
  ▪ CTE pathway and dual enrollment courses were organized to help students see the links between college and careers.
  ▪ Students begin accumulating credits toward programs of study while in high school.

• Also key were the provision of college exploration and academic supports to students who didn’t previously have access to these opportunities.
  ▪ Created college-going expectations.
  ▪ Addressed the need of setting up students for success.
  ▪ Monitored students’ progress to help them succeed.
For more information:

www.concurrentcourses.org

http://ccrc.tc.columbia.edu

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