Linked Learning and Postsecondary Transitions

Community College On-Track Indicators for Linked Learning Students

Julie C. Harris
Miya T. Warner
Kyra Caspary

SRI Education
February 2019

Linked Learning and Postsecondary Transitions

Community College On-Track Indicators for Linked Learning Students

February 2019

SRI Education

This research is supported by a grant from The James Irvine Foundation.

Suggested Citation:
Harris, J.C., Warner, M.T., & Caspary, K.N. (2019). *Community College On-Track Indicators for Linked Learning Students.* Menlo Park, CA: SRI International.

INTRODUCTION

As part of SRI's evaluation of the California Linked Learning District Initiative ("the initiative"), the research team conducted an analysis of the effect of participating in certified Linked Learning pathways on postsecondary on-track indicators for students who enrolled in local community colleges immediately following high school. Using administrative data from California community college districts, we compared on-track indicators for students in Linked Learning pathways with those of similar students in traditional high school programs. We followed three cohorts of students: the class of 2013 in four districts and the classes of 2014 and 2015 in all nine districts. [1] The purpose of these analyses is to provide a more nuanced picture of students' postsecondary experience than is possible from our analysis of postsecondary enrollment and persistence using National Student Clearinghouse data.

The Linked Learning District Initiative

In 2009, recognizing the challenges for individual schools or pathways trying to redesign the high school experience, The James Irvine Foundation launched the California Linked Learning District Initiative. This demonstration project, implemented in nine California districts, focused on the establishment of district systems to support and sustain multiple Linked Learning pathways. The initiative was a vehicle for enhancing Linked Learning, determining what makes it successful at a systemic level, and demonstrating its viability as a comprehensive approach for high school reform.

Participating Districts

Antioch Unified
Long Beach Unified
Los Angeles Unified
Montebello Unified
Oakland Unified
Pasadena Unified
Porterville Unified
Sacramento City Unified
West Contra Costa Unified

SRI's Evaluation

SRI International conducted a rigorous, multimethod evaluation of the initiative in each year of its implementation, conducting interviews with district administrators, partners, stakeholders, pathway teachers, and students; administering students surveys; and collecting administrative data on students' high school academic outcomes and initial postsecondary enrollment. To estimate the impact of participating in a Linked Learning pathway, we compared high school and postsecondary enrollment outcomes for certified pathway students with those of similar peers who participated in traditional high school programs. The seventh-year evaluation report includes implementation findings as well as comprehensive findings on Linked Learning student success through the end of high school (Warner et al., 2016), and our technical report on Linked Learning and postsecondary transitions reports on college enrollment and persistence to a second year of college (Caspary and Warner, 2017). Throughout the evaluation, we paid particular attention to equity, reporting how students in specific subgroups—students with low prior achievement, those with high prior achievement, English learners, and African American, Latino, and female students—performed, compared with similar students in traditional high schools.

Prior Postsecondary Findings

We previously assessed the impact of Linked Learning on a variety of postsecondary enrollment outcomes using National Student Clearinghouse data (Caspary and Warner, 2017). We found that Linked Learning students enrolled in college, remained through the first year, and persisted into a second year

[1] We analyzed data for the class of 2013 (students who started ninth grade in the 2009–10 school year) in Antioch, Long Beach, Pasadena, and Porterville and for the classes of 2014 and 2015 (students who began high school in 2010–11 and 2011–12, respectively) in all nine districts.

at similar rates as their traditional high school peers, both overall and for most of the subgroups examined. Further, Linked Learning had a positive effect on college enrollment, driven by increased enrollment at 4-year institutions, for students who entered high school with low academic achievement, and a positive effect on 4-year college enrollment for African-American students. We found no negative effects of Linked Learning on postsecondary enrollment or persistence for any subgroups.

COMMUNITY COLLEGE ON-TRACK INDICATORS

To evaluate the impact of the Linked Learning District Initiative on students' community college outcomes, we focused on a set of postsecondary on-track indicators (Exhibit 1). These indicators—measurable enrollment and coursetaking patterns from early in students' college careers—are associated with degree completion or successful transfer to a four-year institution (Leinbach and Jenkins 2008, Offenstein, Moore, and Shulock 2009). Though we only have community college data for students' first two years after their expected high school graduation date, these indicators represent progress toward completion and are predictive of later college success. Conditional on enrolling in a community college the fall semester after the expected high school graduation, we examined full-time enrollment, credits earned, enrolling in college level and transfer-level math and English courses, and passing college level and transfer level math and English courses. We looked at transfer-level in addition to college-level course enrollment and success because of the recent focus on transfer-level course completion in California; for example, the California Community College Scorecard reports transfer-level math and English achievement rates (California Community College Chancellor's Office, 2017). In addition, conditional on enrollment in any math or English course, we examined enrollment in a developmental course, separately for English and for math, as a proxy for whether a student placed directly into college-level coursework in the subject as opposed to being placed in a developmental education course.

Exhibit 1: Postsecondary On-Track Indicators

Variable	Description
Full-Time Enrollment	Equal to 1 if student attempted 24 or more credits within the first year after high school
Credits Earned	Number of credits earned within the first 2 years after high school
Enrolled in College-Level Course	*Mathematics*: Equal to 1 if enrolled in college-level mathematics course(s) within the first 2 academic years *English*: Equal to 1 if enrolled in college-level reading or writing course(s) within the first 2 academic years
Enrolled in Transfer-Level Course	*Mathematics*: Equal to 1 if enrolled in transfer-level mathematics course(s) within the first 2 academic years *English*: Equal to 1 if enrolled in transfer-level reading or writing course(s) within the first 2 academic years
Passed College-Level Course	*Mathematics*: Equal to 1 if enrolled in and passed at least one college-level mathematics course with a C or higher (or passed a pass/fail course) within the first 2 academic years *English*: Equal to 1 if enrolled in and passed at least one college-level reading or writing course with a C or higher (or passed a pass/fail course) within the first 2 academic years
Passed Transfer-Level Course	*Mathematics*: Equal to 1 if enrolled in and passed at least one transfer-level mathematics course with a C or higher (or passed a pass/fail course) within the first 2 academic years *English*: Equal to 1 if enrolled in and passed at least one transfer-level reading or writing course with a C or higher (or passed a pass/fail course) within the first 2 academic years
Enrolled in Developmental Course	*Mathematics*: Equal to 1 if enrolled in a developmental math course within the first 2 academic years *English*: Equal to 1 if enrolled in a developmental English course within the first 2 academic years

DATA AND SAMPLE

To estimate the effect of participation in Linked Learning pathways on postsecondary on-track indicators, SRI researchers obtained data prepared by community college districts for the California Community Colleges Management Information System (COMIS), a centralized administration database maintained by the California Community Colleges Chancellor's Office. COMIS student-level records include demographic, enrollment, cumulative credits attempted and earned, and award information. Course-level data include course codes and titles, course grades, and course level (e.g., college-level, levels below transfer). The Linked Learning Alliance was the data intermediary for this phase of the evaluation, establishing agreements with each of the colleges as well as with SRI to transfer these data. We targeted all community colleges within 5 miles of initiative districts' political borders. Using National Student Clearinghouse data, we also identified the community colleges that enrolled 100 or more students from our high school analytic sample. We obtained data from all community college districts that met this enrollment criteria except Chabot-Las Positas, which enrolls students from Oakland Unified School District; Cerritos Community College District, which enrolls students from Long Beach Unified School District; and Los Rios Community College District, which is the primary district that enrolls students from Sacramento City Unified School District (Exhibit 2).

We combined the community college data with student-level demographic, prior achievement, and high school program enrollment data from our high school analysis sample. These data allow us to compare postsecondary on-track indicators for certified pathway students and traditional high school students who enrolled in local community colleges. The final analytic sample included students from eight Linked Learning districts who enrolled in one of the community colleges for which we received data.[2] For the analyses presented in this memo, we limited the analytic sample to students who enrolled in college the fall semester following high school graduation.

[2] Because we received incomplete data for Los Rios Community College District, we excluded students in the high school sample from Sacramento City Unified School District.

Exhibit 2: California Community College Districts Included in Analysis

Linked Learning School District	*Community College District*
Antioch Unified	Contra Costa Community College District
Los Angeles Unified	Los Angeles Community College District
	Glendale Community College District
	Pasadena Area Community College District
	Santa Monica Community College District
Long Beach Unified	Los Angeles Community College District
	Long Beach Community College District
Montebello Unified	Los Angeles Community College District
	Pasadena Area Community College District
	Rio Hondo Community College District
Oakland Unified	Peralta Community College District
Pasadena Unified	Glendale Community College District
	Los Angeles Community College District
	Pasadena Area Community College District
Porterville Unified	Kern Community College District
West Contra Costa Unified	Contra Costa Community College District
	Peralta Community College District

Note. We received data for Solano and West Hills Community College Districts but excluded these data from the analysis because we received data for fewer than 100 students in the analytic sample. We also excluded Sacramento City Unified because we received incomplete data from Los Rios Community College District.

DESCRIPTIVE STATISTICS

In this section we provide descriptive statistics for students in noncertified pathways, certified pathways, and traditional high school programs who were included in the community college analytic sample. We provide the student descriptive statistics to allow for an understanding of how characteristics may differ for students who enrolled in certified pathways, noncertified pathways, or traditional high school programs. Exhibit 3 through Exhibit 5 show the descriptive statistics for student demographics, student prior achievement, and postsecondary outcomes, respectively.

Exhibit 3: Student Demographics for Analytic Sample

	Overall	*Certified Pathway*	*Noncertified Pathway*	*Traditional High School*
N	10,981	1,301	5,053	4,627
Female	50%	52%	50%	49%
Low SES	79%	76%	80%	80%
White	11%	16%	8%	12%
Latino	62%	65%	62%	62%
African American	14%	11%	15%	13%
Asian	13%	9%	15%	12%
Other Race/Ethnicity	1%	1%	1%	1%
Low Prior Achievement	21%	17%	21%	22%
High Prior Achievement	15%	18%	14%	14%
Special Education	8%	6%	8%	9%
Reclassified Fluent English Proficient	30%	30%	30%	29%
Initial Fluent English Proficient	10%	11%	9%	10%
English Only	42%	43%	40%	43%
English Language Learner	19%	16%	21%	17%
Class of 2013	22%	23%	23%	20%
Class of 2014	38%	32%	36%	42%
Class of 2015	40%	45%	41%	37%
Pathway Starts in 10th Grade	23%	26%	27%	16%

Exhibit 4: Student Prior Achievement for Analytic Sample

	Overall	*Certified Pathway*	*Noncertified Pathway*	*Traditional High School*
7th grade				
ELA CST	328	331	329	327
SD	(50)	(60)	(46)	(51)
Math CST	326	334	330	324
SD	(54)	(51)	(53)	(56)
8th grade				
ELA CST	346	356	345	345
SD	(51)	(51)	(51)	(51)
Math CST	338	342	342	332
SD	(58)	(60)	(58)	(58)
9th grade				
ELA CST	332	335	330	333
SD	(50)	(50)	(48)	(52)
Math CST	293	298	294	290
SD	(48)	(50)	(46)	(50)

Note. This table presents mean test scores on California Standards Tests (CST) by subject and grade level, with the standard deviation shown below in parentheses.

Exhibit 5: Two-Year Community College On-Track Indicators for Analytic Sample

	Overall	*Certified Pathway*	*Noncertified Pathway*	*Traditional High School*
Full-Time Enrollment	64%	67%	64%	62%
Credits Earned	27	28	26	28
SD	(20)	(20)	(20)	(20)
College Level Math - Enroll	66%	68%	69%	62%
College Level English - Enroll	68%	71%	65%	69%
Transfer Level Math - Enroll	32%	40%	30%	32%
Transfer Level English - Enroll	54%	59%	50%	56%
College Level Math - Pass	39%	42%	36%	41%
College Level English - Pass	51%	53%	47%	53%
Transfer Level Math - Pass	21%	26%	18%	22%
Transfer Level English - Pass	40%	43%	37%	43%
Developmental Math - Enroll	39%	31%	36%	43%
Developmental English - Enroll	51%	48%	49%	53%

Note. This table presents percentages for binary outcomes and the mean and standard deviation for continuous variables.

METHODS

We conducted an impact analysis to determine whether students in Linked Learning pathways who enrolled in local community colleges immediately after high school were more likely to experience a successful postsecondary transition than similar peers who attended traditional high schools. As in the analysis contained in the seventh-year report, we used statistical controls to compare postsecondary on-track indicators for certified and noncertified pathway students with those of students in traditional high schools who had similar demographic characteristics and prior achievement and who were enrolled in the same district. The differences in outcomes were estimated using a multilevel model that included academic program, such as pathway, as the nesting variable and controlled for student demographic, prior achievement, district, and cohort fixed effects. For binary outcomes, we used a logit model specification. For credits earned, the only non-binary outcome, we used a count model specification with a negative binomial distribution to account for overdispersion. We also ran the analyses separately by subgroup to go beyond the average effect.[3] Because of the small sample size for some of the subgroups, the logit model specification did not converge and we used a linear model instead. Please see the technical report on Linked Learning and postsecondary transitions for details regarding the analysis, including model specification and covariate descriptions (Caspary and Warner, 2017).[4]

SUMMARY OF RESULTS

Here we present a summary of key findings and limitations from the analysis of the impact of Linked Learning on community college on-track indicators for certified pathway students compared with similar peers in traditional high school programs. The full analytic results are available upon request.

The key findings from our analysis are:

- For the full sample analyses, all the certified pathway estimates were indistinguishable from zero, meaning there is no evidence that the Linked Learning initiative had an impact on postsecondary on-track indicators.

- For the subgroup analyses, the only significant certified pathway estimate was from the full-time enrollment model for the high performing student subgroup. Certified pathway students who entered high school with high academic achievement were 1.5 times as likely to enroll full time compared with high performing students from traditional high schools.[5] This result is sensitive to the exclusion of courses students withdrew from, however, as the certified pathway estimate is no longer significant once these courses are excluded. Given that we see no other effects of Linked Learning on the high performing subgroup, this result may be anomalous.

Because these analyses focused on only a subset of the total postsecondary student population (only those attending local California community colleges), there is an added source of potential bias. We know from our analysis of initial postsecondary enrollment that certain student subgroups from certified pathways were more likely to enroll in college and choose a 4-year versus a 2-year institution (Caspary &

[3] We ran the analyses separately for the following subgroups: females, African Americans, Latinos, English learners, students with low prior achievement, and students with high prior achievement.

[4] In calculating full-time enrollment, we included courses from which students withdrew. We ran a sensitivity analysis that excluded withdraw records from the calculation of full-time enrollment.

[5] We defined high prior achievement as earning advanced on the English Language Arts California Standards test before the start of the pathway of traditional high school program.

Warner, 2017). This type of pathway effect on postsecondary enrollment differentially changes the composition of our community college sample for pathway students; more highly motivated certified pathway students are most likely to be influenced to choose a 4-year over a 2-year institution, thus exiting the community college sample. This may bias the certified pathway estimates downwards for those remaining in community college.

In addition, we did not receive community college data from the semesters before a student's expected high school graduation date. As a result, we do not capture college credits earned in high school. If Linked Learning was effective at increasing dual credit options for pathway students, these gains are not captured in our analysis.

References

California Community College Chancellor's Office. *Methodology for college Profile Metrics*. Student success scorecard. Retrieved from: http://extranet.cccco.edu/Portals/1/TRIS/Research/Accountability/ARCC2_0/Profile%20and%20College%20Specs%202017%20Final.pdf

Caspary, K., & Warner, M. (2017). *Linked learning and postsecondary transitions: Technical report on the early postsecondary education outcomes of Linked Learning students.* Menlo Park, CA: SRI International.

Leinbach, D. T., & Jenkins, D. (2008). *Using longitudinal data to increase community college student success: A guide to measuring milestone and momentum point attainment.* New York: Community College Research Center, Columbia University.

Offenstein, J., Moore, C., & Shulock, N. (2010). *Advancing by Degrees: A Framework for Increasing College Completion.* Institute for Higher Education Leadership & Policy. Retrieved from http://eric.ed.gov/?id=ED511863

Warner, M., Caspary, K., Arshan, N., Stites, R., Padilla, C., Patel, D., McCracken, M., Harless, E., Park, C., Fahimuddin, L., & Adelman, N. (2016). *Taking stock of the California Linked Learning District Initiative. Seventh-year evaluation report.* Menlo Park, CA: SRI International.