

A Cost Effectiveness Study of the First Year of PCC Pathways

Purpose

Pasadena City College developed PCC Pathways in 2011 to increase the number of students who complete their academic goals in a timely manner. The program does this by guaranteeing math and English/ESL in students' first year of college, a college readiness course in their first semester, and providing a comprehensive set of support services to increase students' success, persistence, and completion rates.

PCC Pathways has grown each year to meet the college's objective of effectively serving all students: 325 student were in enrolled in the 2011-12 Pathways cohort, and approximately 2,350 students are enrolled in the 2016-17 cohort. To support the program's growth, the college has invested additional resources each year.

The college has taken steps to measure the program's effectiveness. In 2015, the UCLA Social Research Methodology Evaluation Group conducted a comprehensive evaluation of three cohorts (2012-13, 2013-14, and 2014-15) and determined that the program was making significant progress in helping students complete their goals. In addition to measuring outcomes, the college also wanted to ensure that resources were being used efficiently to help the college meet its strategic goals. In fall 2016, the Office of Institutional Effectiveness (OIE) conducted a cost-effectiveness study of the First Year Pathways program to ensure that college resources are being used prudently.

Method

A cost-effectiveness study compares policy or education alternatives based on their costs to a quantifiable effectiveness measure. The goal of such a study is to compare multiple programs with the same outcome on their efficiency of resource use¹. A cost-effectiveness analysis ratio looks like this:

$$\frac{\text{Cost of a program}}{\text{Quantifiable outcome}}$$

Using this framework, OIE evaluation staff completed a cost-effectiveness study of the 2013-2014 PCC Pathways cohort to assess the academic and monetary impact of the program on completion rates.

The cost-effectiveness study was conducted on the 2013-2014 cohort for two reasons: 1) sufficient time had passed to assess completion and 2) the college had completed the implementation of its new Student Information System, Banner, which provided evaluators with comprehensive and reliable cost data.

¹ Hollands, F.M., Pan, Y., Shand, R., Cheng, H., Levin, H.M., Belfield, C.R., Kieffer, M., Bowden, A.B., & Hanisch-Cerda, B. (2013). *Improving Early Literacy: Cost-effectiveness analysis of effective reading programs*. Center for Benefit-Cost Studies of Education, Teacher's College, Columbia University.



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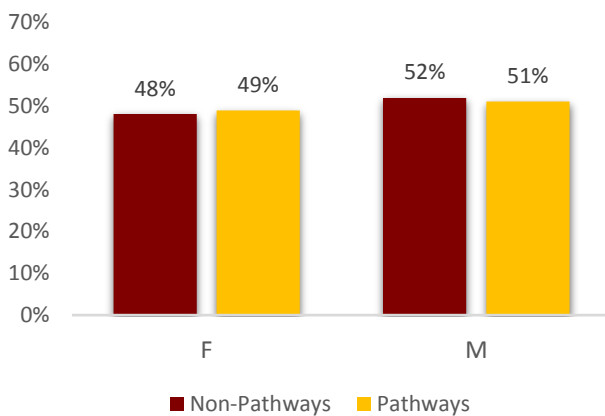


Pathway and non-Pathway students...

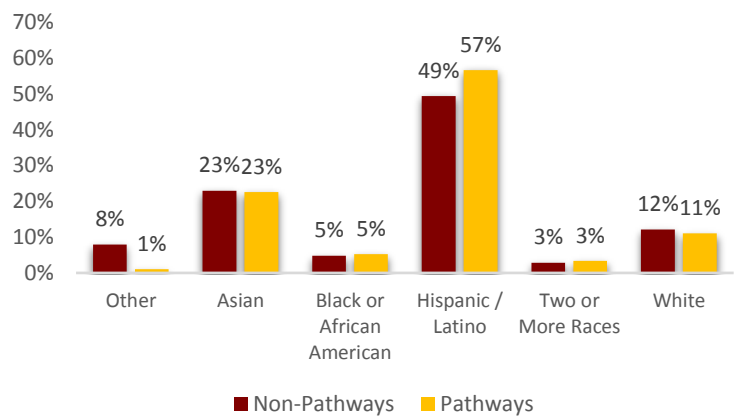
- were first-time freshmen
- were 24 years of age or younger
- had not earned more than six units prior to starting college at PCC
- had identified transfer, degree, certificate or undecided as their goal

Using these criteria, OIE staff determined that the final sample size for Pathways was **816 students** and for non-Pathways was **4,016 students**. The average age of Pathways students was 18, and the average age of non-Pathways students was 19.

Cohort by Gender



Cohort by Ethnicity



Because there was no alternative program to compare to PCC Pathways, a “business-as-usual” approach was used -- a group of students who had not participated in the Pathways program was compared to a group of Pathways students. *Completion* was used as the quantifiable outcome (denominator) and defined as students who reached transfer-ready² status, received an AA degree, or earned a certificate, similar to the California Community Colleges Chancellor’s Office definition.

Completion was assessed at the end of the Fall 2016 term, providing a 3.5 year window for students to attain a quantifiable outcome.

² Transfer ready status – Students have completed a transfer-level Math and English course and have attained 60 transferable units with a GPA of 2.0 or higher.



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Pathways Costs Estimates

OIE evaluators worked closely with program staff to identify all costs associated with the implementation of PCC Pathways in 2013-14. Program costs were categorized into four areas: Personnel, Facilities, Supplies, and Other:

Cost Type	Total
Personnel	\$958,032.83
Supplies	\$152,203.36
Facilities	\$169,560.00
Other	\$152,865.82
Total Cost	\$1,432,662.01

Findings

- At the end of 3.5 years (the duration of this study), 31% of Pathways students had completed a quantifiable outcome (degree, certificate, or transfer-ready status) compared to 17% of non-Pathways students.
- Of the Pathways students who had completed a quantifiable outcome, approximately 70% of them had reached transfer-ready status and approximately 30% had earned a degree or certificate. Similarly, of the non-Pathway students who had completed a quantifiable outcome, approximately 77% reached transfer-ready status and 23% had earned a degree or certificate.
- It was estimated that it cost PCC approximately **\$12,625** to educate one student over the course of 3.5 years.
 - To estimate how much it cost PCC to educate one student in 2013-2014, a per-unit cost (\$241.96) was determined by dividing PCC's annual budget of \$125 million by the total number of attempted units.
 - Cohort cost per-student = $\frac{(3.5 \text{ year cohort unit total}) (\text{per unit cost})}{\text{number of students in the cohort}} = \frac{(252124) (\$241.96)}{4832} = \mathbf{\$12,625}$



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4. The annual cost for the PCC Pathways program during the 2013-2014 academic year was **\$1,432,662**, resulting in a per first year Pathways student cost of **\$1,675.63**.
 - The per-pathway student cost was calculated by dividing the total cost of pathways by the total number of students served in pathways, which was 855 (39 students were excluded for not meeting the selection criteria)

	Non-Pathways (Comparison)	Pathways
Cohort Size	4,016	816
Cost per Student for 3.5 years	\$12,625	\$14,300.63 (\$12,625 + \$1,675.63 *)
Completion Rate	17%	31%
Cost per Completion	\$74,343	\$46,124

*\$1,675.63 represents the additional cost per first year Pathways student. That amount is a one-time cost and added to the base 3.5 year cost of \$12,625.

5. The Pathways *cost per completion* was approximately \$28,219 less than the non-Pathways cost per completion (\$46,124 vs \$74,343).
6. Although the cost per Pathways student is higher than that of a non-Pathways student during the first year of college, the overall Pathways cost per completion was significantly lower.

Conclusions & Recommendations

1. PCC Pathways is cost-effective to the institution in helping students complete their academic goals in a timely manner. Although there is a higher initial cost per student, this study suggest the college can save a significant amount of resources over time.
2. Findings from this study highlight the importance and benefits of investing in scalable programs that provide comprehensive support services to students, create momentum via credit accumulation, and ensuring access to Math and English in their first year in college.
3. It is recommended that the OIE conduct a similar study in the near future to determine if PCC Pathways outcomes and costs increase, decrease, or remain stable as the program evolves and grows.
4. It is recommended that the college perform cost effectiveness studies as part of the evaluation of all student success programs and use it as a criterion in allocating resources during the annual integrated planning cycle.