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, English, and a college readiness course in the first year of college 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 to help the college efficiently meet its strategic goals. In fall 2016, the Office of Institutional Effectiveness (OIE) conducted a cost-effectiveness study to assess PCC Pathways 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 use. A cost-effectiveness analysis ratio looks like this:

\[
\frac{\text{Cost of a program}}{\text{Quantifiable outcome}}
\]

Figure 1 Cost of a program: quantifiable income

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.

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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 833 students and for non-Pathways was 4,060 students. The average age of Pathways students was 18, and the average age of non-Pathways students was 19.

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 effectiveness measure and defined as students who reached transfer-prepared 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 goal.

**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:

<table>
<thead>
<tr>
<th>Cost Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$958,032.83</td>
</tr>
<tr>
<td>Supplies</td>
<td>$152,203.36</td>
</tr>
<tr>
<td>Facilities</td>
<td>$169,560.00</td>
</tr>
<tr>
<td>Other</td>
<td>$152,865.82</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td><strong>$1,432,662.01</strong></td>
</tr>
</tbody>
</table>
Findings

1. At the end of 3.5 years (the duration of this study), 31% of Pathways students had completed an academic goal (degree, certificate, or transfer-ready status) compared to 17% of non-Pathways students.

2. It was estimated that it cost PCC approximately $12,925\(^2\) to educate one student over the course of the 3.5 years.

3. The annual cost for the PCC Pathways program during the 2013-2014 academic year was $1,432,662.01, resulting in a per-Pathways student cost of $1,675.63 (in addition to the per-PCC student cost of $12,925.)

<table>
<thead>
<tr>
<th></th>
<th>Non-Pathways (Comparison)</th>
<th>Pathways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort Size</td>
<td>4,060</td>
<td>833</td>
</tr>
<tr>
<td>Cost per Student for 3.5 years</td>
<td>$12,925</td>
<td>$14,600.63 ($12,925 + $1,675.63)</td>
</tr>
<tr>
<td>Completion Rate</td>
<td>17%</td>
<td>31%</td>
</tr>
<tr>
<td>Cost per Completion</td>
<td>$76,384</td>
<td>$47,324</td>
</tr>
</tbody>
</table>

4. The Pathways cost per completion was approximately $29,060 less than the non-Pathways cost per completion ($47,324 vs $76,384).

5. Although the cost per Pathways student is higher than that of a non-Pathways student during the first year of college, the Pathways cost per completion was significantly lower due to higher completion rates.

Conclusions & Recommendations

1. PCC Pathways is highly effective at helping students complete their academic goals in a timely manner and, while there is a higher initial cost per student, the program saves the college a significant amount of resources over time. 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.

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 increase transfer-level math and English completion rates. It is recommended that the college perform cost effectiveness studies as part of the evaluation of all student success programs.

3. This study concluded that PCC effectively allocated appropriate resources to support and grow a program proven to increase success, persistence, and completion rates. It is recommended that

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\(^2\) To estimate how much it cost PCC to educate one student in 2013-14, 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 = \(\frac{(3.5 \text{ year cohort unit total}) \times \text{(per unit cost)}}{\text{number of students in the cohort}}\) = \(\frac{261375.7 \times \$241.96}{4893}\) = $12,925
PCC use cost effectiveness as a criterion in allocating resources during the annual integrated planning cycle.

4. Findings illustrate that it was cost effective to ensure that PCC Pathway students in the 2013-14 cohort were able to enroll in the courses that they needed to complete their academic goals. It is recommended that PCC evaluate its internal policies and procedures to continue current and promote additional cost effective strategies.