

## Bellevue School District

# Re-imagining Career & College Readiness

### DID THE RE-IMAGINING CAREER & COLLEGE READINESS PROGRAM IMPROVE ACHIEVEMENT FOR UNDERSERVED STUDENTS?

## Project Overview

#### **THE PROBLEM: What Challenge Did the Program Try to Address?**

Student achievement was low at Sammamish High School, a linguistically, racially, economically, and ethnically diverse school. The school was the most diverse student population in its district. Its student diversity was due in part because of a significant increase in the population of economically disadvantaged students over a short period. Achievement gaps existed among underserved students, particularly those with economic, linguistic, and learning differences.

#### **THE PROJECT: What Strategies Did the Program Employ?**

To address improvement, the Bellevue School District launched implementation of Problem Based Learning<sup>1</sup> (PBL) at one of its comprehensive high schools, Sammamish High, through a PBL framework custom-designed for the district. The framework articulated what PBL is and what it looks like in practice, including collaboration, student voice, leadership, authentic problems, and assessment. With an i3 development grant award<sup>2</sup> in 2010, the Bellevue School District implemented PBL schoolwide from 2010 – 2015. They sought to produce a scalable PBL curriculum, increase performance and decrease the achievement gap, and improve graduation rates, specifically for underserved students. The program was evaluated using three design methods (interrupted time series<sup>3</sup>, pre/post research, and pre/post quasi-experimental design<sup>4</sup>) to assess both program impact and implementation using a combination of quantitative and qualitative measures.

<sup>1</sup> Student-centered approach to teaching that focuses on open-ended problem-solving through experiential learning

<sup>2</sup> Development grants provide funding to support the development or testing of novel or substantially more effective practices that address widely shared education challenges. All i3 grantees are required to conduct rigorous evaluations of their projects. The quality of evidence required to demonstrate a project's effectiveness depends on a project's level of scale or grant type.

<sup>3</sup> Study design where a series of data points in time order is analyzed to determine impact of intervention.

<sup>4</sup> Study design where information is collected before and after the intervention to determine whether the intervention is effecting change.

## CREATING CAPACITY FOR PBL

- **Professional learning.** Teacher-led professional development experiences to increase expertise in PBL. Teachers participated in an average of 34 hours of in-person professional learning during the summer and during monthly staff meetings each year.
- **Career readiness resources.** Career readiness assessments and support for completion of financial aid applications for participating students.
- **Framework design.** Development of research-based framework for PBL implementation and evaluation (The Key Elements).
- **Curriculum design.** Redesign of curriculum to align with PBL framework, led by teacher design teams.
- **Leadership team preparation.** Design leadership team and teacher leader roles, meeting plan, and model for supporting teachers with implementation of PBL.

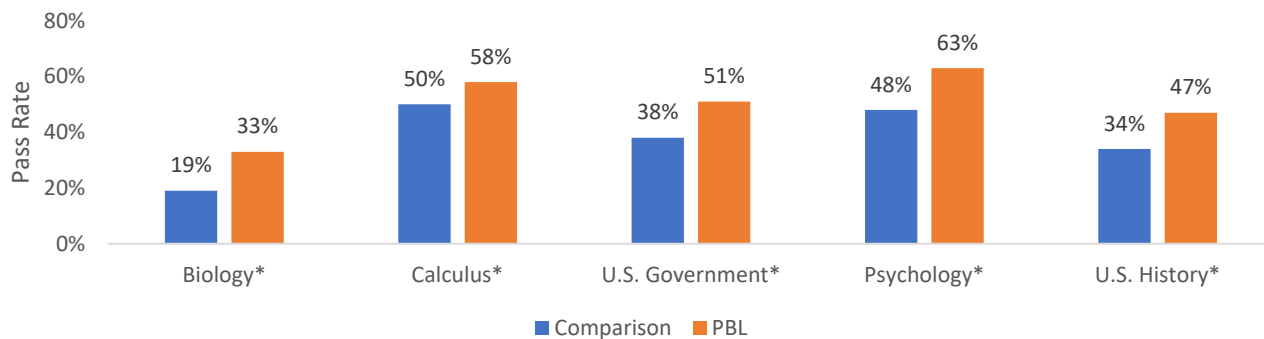
## IMPLEMENTING PBL

- **PBL curriculum implementation.** Implementation of rigorous courses in both AP and non-AP courses using PBL design criteria outlined in the Key Elements.
- **Summer program implementation.** Included design and implementation PBL workshops for students.

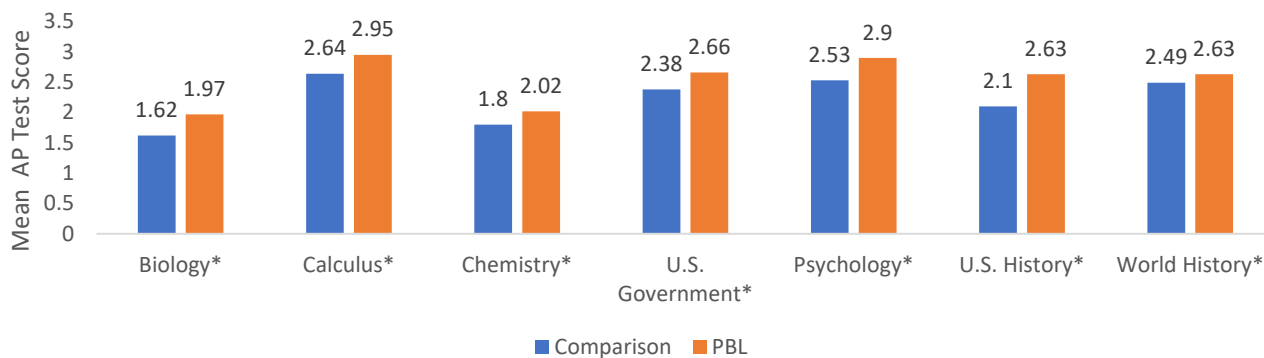
## Summary of Results

### DID THE RE-IMAGINING CAREER & COLLEGE READINESS PROGRAM IMPROVE ACHIEVEMENT FOR UNDERSERVED STUDENTS?

Students' AP Test Pass Rates Across Subjects



Students' Mean AP Test Score Across Subjects



\*Differences are statistically significant at the 0.05 level.

**SAMMAMISH STUDENTS WHO TOOK PBL REDESIGNED COURSES OUTPERFORMED** students who did not take redesigned courses. The program made a significant, positive impact across courses and groups of underserved students.

- **AP TEST PASS RATES:** Students who took the PBL classes had significantly higher pass rates of AP tests in the following subjects: Biology (19% of comparison compared to 33% of intervention students), Calculus (50% of comparison compared to 58% of treatment), U.S. government (38% of comparison compared to 51% of treatment), psychology (48% of comparison compared to 63% of treatment), history (34% of comparison compared to 47% of treatment).
- **CAREER AND COLLEGE READINESS.** The average number of AP tests that students took who participated in PBL classes was higher than those who did not: 4.33 tests on average for treatment students compared to 4.01 for comparison students, although it is unclear if this is significant. Students demonstrated increasingly stronger performance in cognitive strategies<sup>5</sup> on measures of career and college readiness.
- **AP SCORES ACROSS SUBJECTS.** Overall the intervention group earned significantly higher scores on AP exams in biology (1.62 for comparison compared to 1.97 for treatment), calculus (2.64 for comparison to 2.95 for treatment), chemistry (1.80 for comparison compared to 2.02 for treatment), U.S. government (2.38 for comparison compared to 2.66 for treatment), psychology (2.53 for comparison compared to 2.90 for treatment), U.S. history (2.10 for comparison compared to 2.63 for treatment) and world history (2.49 for comparison compared to 2.63 for treatment).

## SECONDARY FINDINGS

- **UNDERSERVED POPULATIONS.** English language learners, students with disabilities, and economically disadvantaged students significantly outperformed the comparison group in both participation in AP courses and performance on exams in Science and Social Studies.

Please see Appendices B and C for information about the evaluation's design and the quality of the evidence, respectively.

---

<sup>5</sup> One of four dimensions included in the Campus Ready Assessment was Key Cognitive Strategies. This dimension

included aspects of problem formulation, research, interpretation, communication, and precision.

## OTHER CONSIDERATIONS

The evaluation noted some other points for consideration regarding college readiness.

- **LEADERSHIP.** School district leadership made intentional decisions around designing the right supports, including appointment of teacher leaders.
- **TEACHER-LED COMPONENTS.** Professional learning within the program was largely teacher-led. Teachers also had opportunities to learn and design curriculum as members of diverse design teams.
- **SUMMER PROGRAM.** Some students participated in a subcomponent of the program, a nine-day summer workshop designed to give students authentic experiences to solve problems to promote careers and college readiness.

## For More Information

### Evaluation Reports

- [Final Evaluation Report \(Full Report\)](#) (March 2016)<sup>6</sup>
- [Final Evaluation Report \(ERIC\)](#) (Abstract, March 2016))

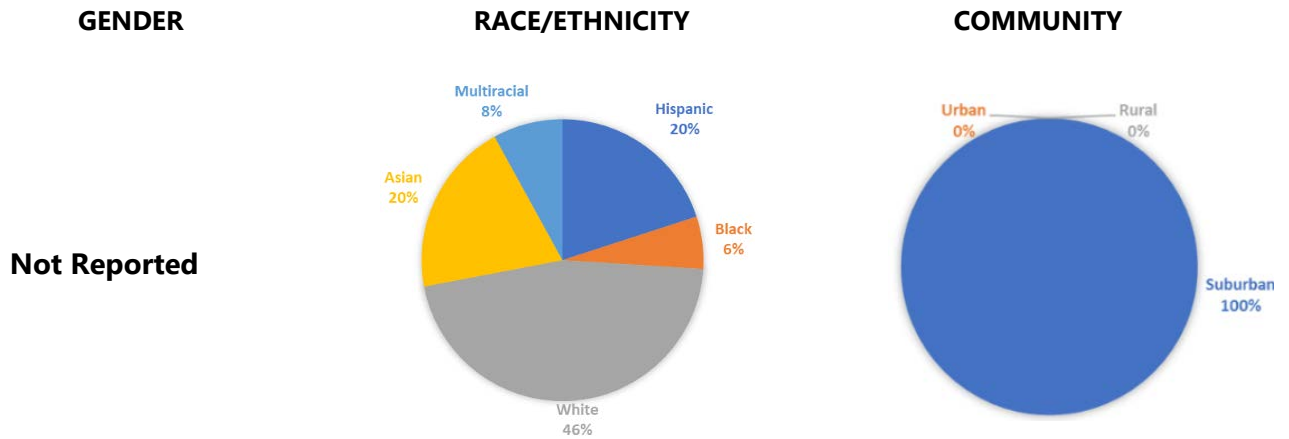
### Additional Reports

- [Sammamish PBL website](#)
- [Reinventing a Public High School: A Case Study in Integrating Problem-Based Learning](#) (Edutopia, March 2013)

<sup>6</sup> The information and data for this result summary was collected from the most recent report as of 01/23/2020: Knuth Research Inc., (2016). *An Evaluation Report: i3 Development Grant Dev07 – Sammamish High School*. Retrieved from: <https://files.eric.ed.gov/fulltext/ED564713.pdf>

## Appendix A: Students Served by the Project<sup>7</sup>

GRADE(S)													
PK	K	1	2	3	4	5	6	7	8	9	10	11	12



HIGH-NEED STUDENTS <sup>i</sup>		
Free/Reduced-Price Lunch	English Learners	Students with Disabilities
45%	10%	12%

<sup>7</sup>These data reflect the entire student population served by the intervention, not just the evaluation sample used in the impact study.

## Appendix B: Impact Evaluation Methodology<sup>8</sup>

### RESEARCH DESIGN:

<b>Design:</b>	<ul style="list-style-type: none"> <li>▪ Interrupted time series for past and current Advanced Placement (AP) test score comparison</li> <li>▪ Pre/post research to study relationship between PBL courses and test performance</li> <li>▪ Pre/post quasi-experimental design to measure impact of summer program participation on college and career readiness</li> </ul>
<b>Approach:</b>	<ul style="list-style-type: none"> <li>▪ Two studies conducted to evaluate impact of program components by: Comparing past and current AP test scores, examining relationship between participation in PBL designed courses and performance, and assessing impact of summer program participation on career/college readiness</li> </ul>
<b>Study Length:</b>	Five years

### DATA COLLECTION AND ANALYSIS

<b>Study Setting:</b>	One public comprehensive high school in Bellevue, WA
<b>Final Sample Sizes:</b>	<ul style="list-style-type: none"> <li>▪ <i>Intervention Group:</i> 3,505 Students</li> <li>▪ <i>Comparison Group:</i> 2,612 Students</li> </ul>
<b>Intervention Group Characteristics:</b>	Not reported
<b>Comparison Group Characteristics</b>	Not reported
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>▪ Teacher surveys</li> <li>▪ Teacher interviews</li> <li>▪ Teacher focus groups</li> <li>▪ Student focus groups</li> <li>▪ School leader interviews</li> <li>▪ Classroom observations</li> <li>▪ Design team observations</li> </ul>
<b>Key Measures:</b>	<ul style="list-style-type: none"> <li>▪ AP Exam</li> <li>▪ EPIC Campus Ready Assessment</li> </ul>

<sup>8</sup> These data reflect only the evaluation sample in the impact study, not the entire population served.

## Appendix C: Quality of the Evidence

Although an evaluation may not have been reviewed by the time of publication for this summary, it is possible that the study will be reviewed at a later date. Please visit the websites found in the footnotes on this page to check for updates.

### WHAT WORKS CLEARINGHOUSE REVIEW<sup>9</sup>

STUDY	RATING
An evaluation report: i3 Development Grant Dev 07-Sammamish High School "Re-imagining Career and College Readiness: STEM, rigor, and equity in a comprehensive high school" <a href="https://ies.ed.gov/ncee/wwc/Study/84075">https://ies.ed.gov/ncee/wwc/Study/84075</a>	Does not meet WWC standards because uses a quasi-experimental design; analytic intervention and comparison groups do not satisfy requirement

### EVIDENCE FOR ESSA REVIEW<sup>10</sup>

STUDY	RATING
Not reviewed as of 01/23/2020	N/A

### NATIONAL CENTER ON INTENSIVE INTERVENTIONS REVIEW<sup>11</sup>

STUDY	RATING
Not reviewed as of 01/23/2020	N/A

<sup>9</sup> <https://ies.ed.gov/ncee/wwc/FWW>

<sup>10</sup> <https://www.evidenceforessa.org/>

<sup>11</sup> <https://intensiveintervention.org/>



# Investing in Innovation (i3) Grantee Results Summary

Development, 2010-2015

The [\*\*\*Investing in Innovation Fund \(i3\)\*\*\*](#), established under section 14007 of the American Recovery and Reinvestment Act of 2009, is a Federal discretionary grant program at the U.S. Department of Education within the Office of Elementary and Secondary Education (OESE). i3 grants help schools and local education agencies work in partnership with the private sector and the philanthropic community to develop and expand innovative practices that improve student achievement or student growth, close achievement gaps, decrease dropout rates, increase high school graduation rates, and/or increase college enrollment and completion rates for high-need students.

This summary was prepared by the Education Innovation and Research (EIR) Program Dissemination Project. The project is conducted by the [Manhattan Strategy Group](#), in partnership with [Westat](#) and [EdScale](#), with funding from the U.S. Department of Education, [Office of Elementary and Secondary Education](#), under Contract No. ED-ESE-15-A-0012/0004. The evaluation results presented herein do not necessarily represent the positions or policies of the U.S. Department of Education, and no official endorsement by the U.S. Department of Education should be inferred.

---

<sup>i</sup> “High-need student” refers to a student at risk of academic failure or otherwise in need of special assistance and support, such as students who are living in poverty, attend high-minority schools, are far below grade level, who have left school before receiving a regular high school diploma, at risk of not graduating with a diploma on time, who are homeless, in foster care, have been incarcerated, have disabilities, or who are English learners. For more information see: [Applications for New Awards; Investing in Innovation Fund-Development Grants, 81 FR 24070 \(April 25, 2016\)](#).