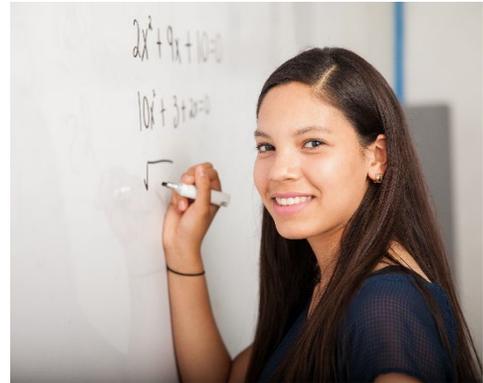


## Hispanic-Serving Institution (HSI) Evaluates Novel Pre-Calculus College Program

### About the Organization

The HSI team, part of a public university that is research-oriented and doctoral degree-granting is committed to long-term efforts that help Latinx students successfully participate in their school's community and graduate into impactful careers. A central tenet of the team's work is bringing support and resources to historically underserved students, including implementing new educational practices that can lead to more equitable outcomes for all students.



### The Challenge

Inequitable social context and institutional barriers lead to disparities in STEM achievement among Latinx and low-income students. One of HSI's programs, the Pre-Calculus College Program (PCCP), is aimed at addressing university STEM attrition that occurs as a result of these disparities among high-potential Latinx students pursuing STEM degrees. PCCP provides small-class instruction, tutoring, and academic advising to support pre-calculus students. The HSI team requested an external evaluation of PCCP.

### The Solution

Actionable Insights (AI) created an evaluation plan with the team to identify and answer certain research questions about the contributions of PCCP to students' STEM outcomes. AI then assessed the secondary data available on 150 students across two years of PCCP and over 750 non-PCCP students during the same time period to create a matched comparison group of 150 non-PCCP students. AI conducted statistical analyses to compare the differences and understand the roles of various factors on the outcomes of PCCP and non-PCCP students. AI also analyzed pre-/post- program surveys and program data on participation in advising and tutoring to better understand PCCP students' self-efficacy in math and sense of belonging to the university community.

### Results and Benefits

PCCP's clear academic and social-psychological benefits contribute to STEM persistence among high-potential Latinx and low-income students at the university; for example:

- PCCP students showed improvements in their attitudes and behaviors related to their sense of belonging in the university community and their self-efficacy in math. These are important insights because both of these elements have been shown to contribute to students' perseverance in STEM majors.
- PCCP contributed to students' achievement in pre-calculus, a key STEM course. PCCP participation was the largest and most significant factor in predicting students' grades in this class, and PCCP students' grades in pre-calculus were significantly better (earning an average grade of B, compared to a C for non-PCCP students).
- PCCP students did significantly better in foundational STEM courses overall, earning higher GPAs compared to non-PCCP students.
- The data suggest that PCCP contributes to the retention of high-potential Latinx and low-income students in STEM; a significantly greater proportion of PCCP students than non-PCCP students declared a STEM major.

Continuing the PCCP program would allow the expansion of educational equity and would increase access to STEM careers for future students.

“I believe this approach to holistic teaching makes student learning very powerful, because they know that they are cared for and that we are with them every step of the way.”

**Math Instructor**  
**Pre-Calculus College Program**

## About Actionable Insights, LLC

Actionable Insights helps organizations discover and act on data-driven insights to achieve better outcomes. Co-founders Melanie Espino and Jen van Stelle, Ph.D. lend their expertise to clients in the areas of health, housing, early childhood and youth development, STEM education/outreach, aging, and community collaboration efforts.

Organizations come to Actionable Insights for help in:

- Measuring their impact
- Discovering key insights in their data
- Better telling the story of their work
- Planning and executing effective, data-driven action

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