Financial and Interdisciplinary Support Programs Differentially Support Low Income Scholars Through COVID

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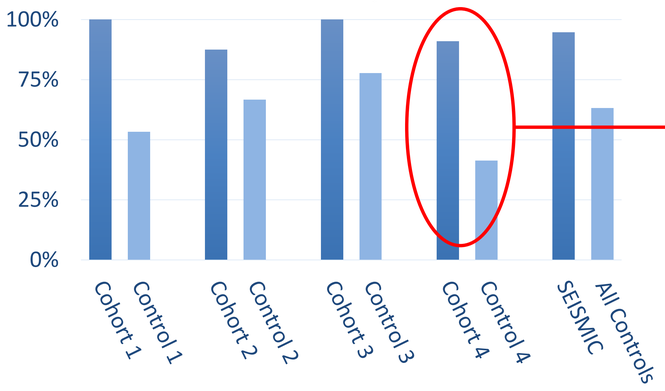
Abstract: Students Engaging In Scientific and Mathematical Interdisciplinary Collaboration (NSF 164375), supports low-income, academically talented Scholars with multiple components including scholarships, paid undergraduate research, service learning, social science and humanities courses, and career development. Scholars will graduate in STEM at a rate of 95%, higher than the rate of eligible, non-participants (62%). High percentages of Scholars attribute increased understanding of the interdisciplinary nature of STEM and growth in on-campus support networks to programming. However, they report variation in the components to which they attribute those gains, with most participants acknowledging the importance of engagement with different program components over time. Scholars report differences in off-campus work, which may have been impacted by the Covid pandemic. While all Scholars starting at the onset of the Covid pandemic were retained in STEM, retention of eligible, non-participants fell from 70% to 38%, indicating the importance of financial and communal support during challenging times.

SEISMIC Support Programs: Layered, Multimethod Support

- Summer Bridge – Research Immersion
- STEM Service Learning (Psychology Course)
- Humanities Focus (Philosophy Course)
- Capital Development (Special Seminar)
- Career Readiness (Special Seminar)
- Additional Faculty Mentoring
- Scholarship Support for Sophomore to Senior Year
- Common Activities

Success Rates for SEISMIC Scholars & Control Group Students



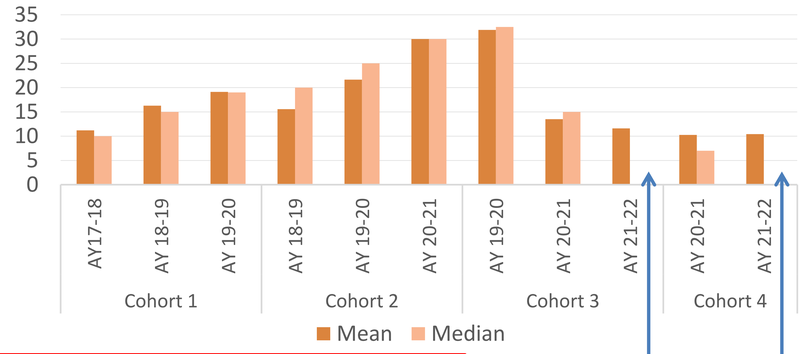
38 Scholars were supported from 2016 to 2022. Control group students (N=125) were eligible for, but did not receive, scholarship or program support. Based on the success rates of control group students, **SEISMIC support increased STEM graduates by 14 Scholars.**

Financial Support, Differential Impact

Scholarship value = $6,000 to $6,500
Additional $500 paid to Scholars in Spring 2020
Differential Financial Impacts

- Many scholars reported working off-campus
- Pre-pandemic (Cohorts 1 and 2) mean and median hours worked off-campus increased
- Post-pandemic (Cohorts 3 and 4) saw number of participants working off-campus decline each year, but those who continued to work often took on more hours

Mean and Median Weekly Hours Worked by Cohort and Year



Median = 0, implies wide variation in work

Scholars and controls who were rising sophomores **in Fall 2020**. 91% Scholars retained; 41% controls retained.

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Scholars report agreement on central themes in their growth, but attribute gains differently.*

*Based on exit interviews of 20 SEISMIC Scholars upon Graduation.

Common Themes:

"What Knowledge have you gained about STEM through the program?"

- 85% (17 of 20) reported learning how different fields work together.

"What set of science skills have you developed during your time in the program?"

- 70% (14 of 20) reported learning specific lab skills.

"What specific aspects of your support network both on and off campus have changed the most during your time in the program?"

- 95% (19 of 20) reported growth in their on-campus support network, of which 40% specifically mentioned network of faculty, 45% network of peers, 25% network of advisors or mentors
- 50% (10 of 20) reported no growth in their off-campus support.

Variety in Attribution:

"In what ways has your participation in this project affected your preparation and aspiration for a future science career?"

- 40% - large impact from research experience
- 30% - encouraged to explore new areas of science or be interdisciplinary
- 25% - better understand how to apply for jobs, grad school
- 20% - changed views of potential future jobs
- 20% - public speaking opportunities inspired confidence
- 20% - encouraged to continue in studies