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University of Puerto Rico
Mayagüez Campus

National Science Foundation
WHERE DISCOVERIES BEGIN

UPR
Recinto Universitario de Mayagüez

Perceptions of low-income and academically talented students and mentors of the PEARLS program – an S-STEM program at UPRM

ASEE 2022 ANNUAL CONFERENCE | Excellence Through DIVERSITY

ASEE

Agenda

INTRODUCTION	Evaluation Design	Assessment Result	Conclusions and Implications
• Abbreviations • PEARLS Program • L-CAS Model • Goals of PEARLS	• Description • Data Collection • Participants • Mentoring Program	• Students' Perspective • Mentors' Perspective	

Introduction

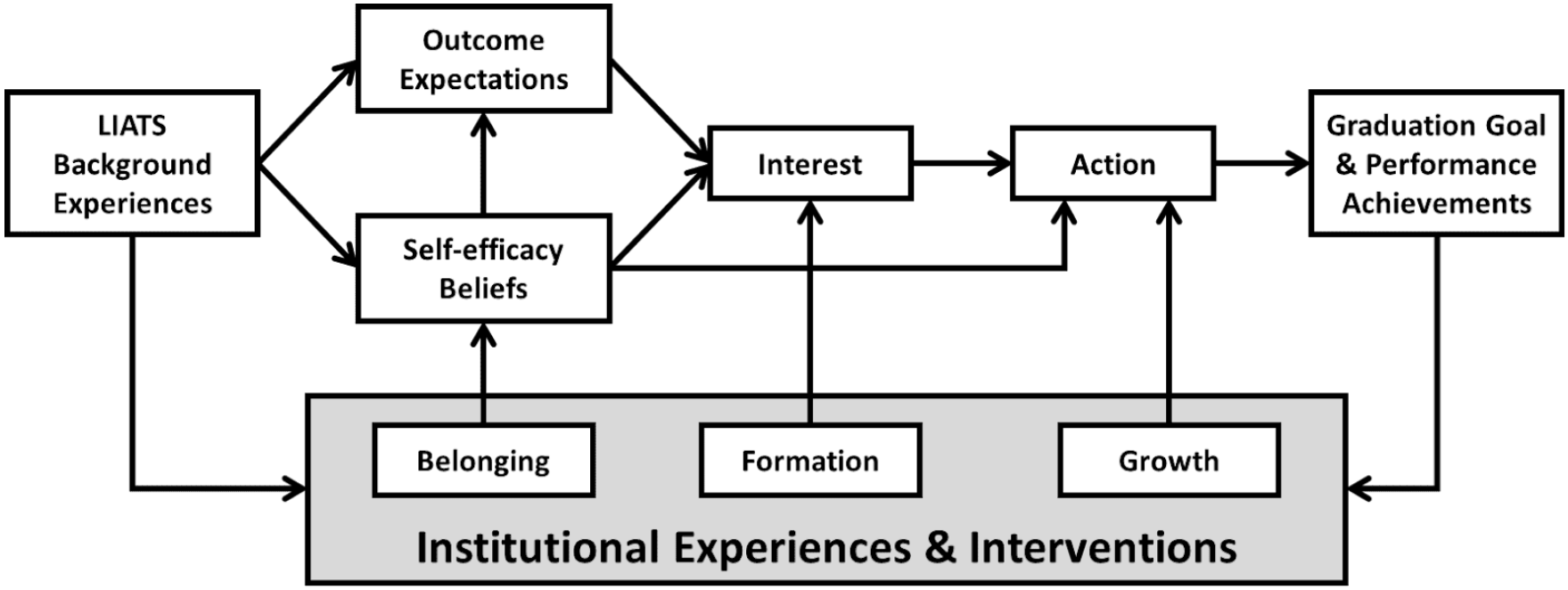
Abbreviations

- UPRM: University of Puerto Rico, Mayagüez Campus
- CoE: College of Engineering
- PEARLS: Program for Engineering Access, Retention, and LIATS Success
- LIATS: Low Income Academically Talented Students
- L-CAS: LIAT College Access and Success

Increase the retention and success of LIATS in engineering programs at a UPRM.

Goals of the project

85% of the participants remain in their CoE program until graduation	85% of the participants maintain their status as scholars for the award extension	80% of participants complete their degrees in less than 6.5 years	85% of participants will enter the workforce or continue into graduate school within a year after graduation



L-CAS Model

UPRM

Evaluation Design

Evaluation Design

- Descriptive Design
  - Dr. Janet Bonilla, external evaluator
- Students' and mentors' perspectives of the mentoring plan established for the PEARLS program.
- Guiding Questions
  - What activities impacted students and mentors?
  - What were the strengths and weaknesses of the mentoring program?

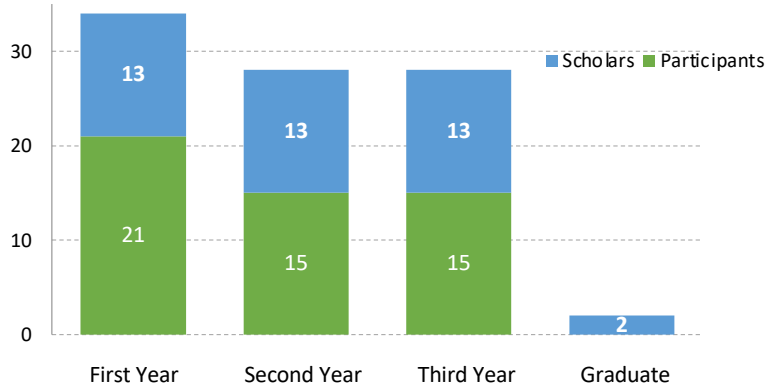
Data Collection

- Electronic Self-Report Questionnaires
  - Annual Assessment Questionnaire for Students
  - Annual Assessment Questionnaire for Mentors
- Direct Observation
- Official Documents

M. Jimenez, S. Bartolomei, L. Guillemard, A. Santiago, M. Suarez, N. Santiago, C. López, P. Quintero, N. Cardona, "Work in Progress: Impacting Students from Economically Disadvantaged Groups in an Engineering Career Pathway". In Proc. Of 2020 ASEE Annual Virtual Conference & Exposition – ASEEVC 2020, Hosted by Univ. of Maryland. June 22-26, 2020

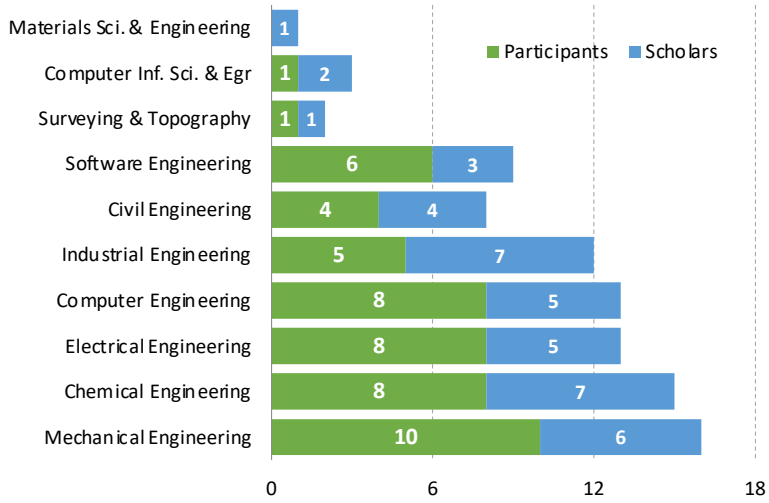
Student Demographics – Year 1

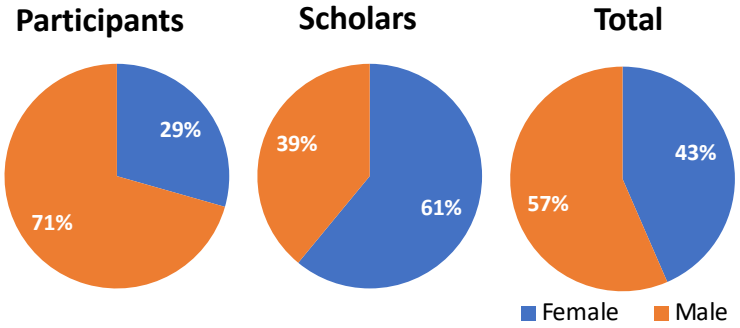
Students by Academic Year

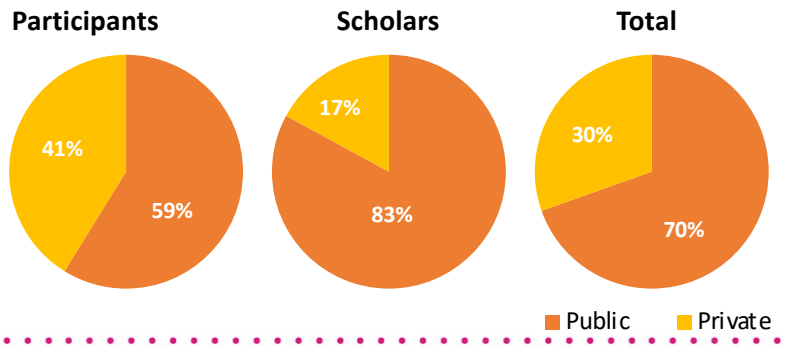


TOTAL	92
Scholars	41
Participants	51

Study Program Distribution

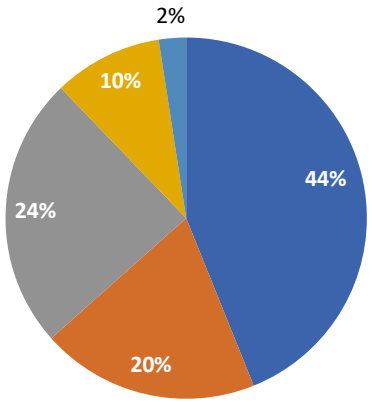




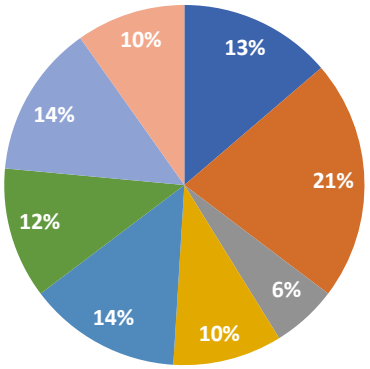


Family Background – Year 1

Scholars



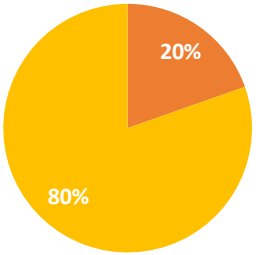
Participants



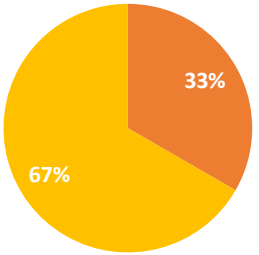
- Under $ 7,499
- $ 7,500 - $12,499
- $12,500 - $19,999
- $20,000 - $29,999
- $30,000 - $39,999
- $40,000 - $49,000
- $50,000 - $74,999
- $75,000 & above

TOTAL	92
Scholars	41
Participants	51

Mothers'

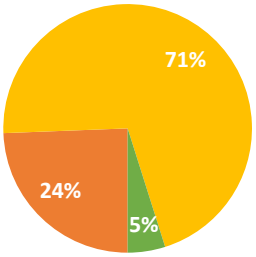


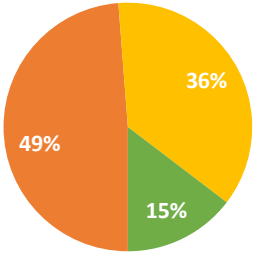
Fathers'



Participants

- Non-college
- College Degree
- Undefined

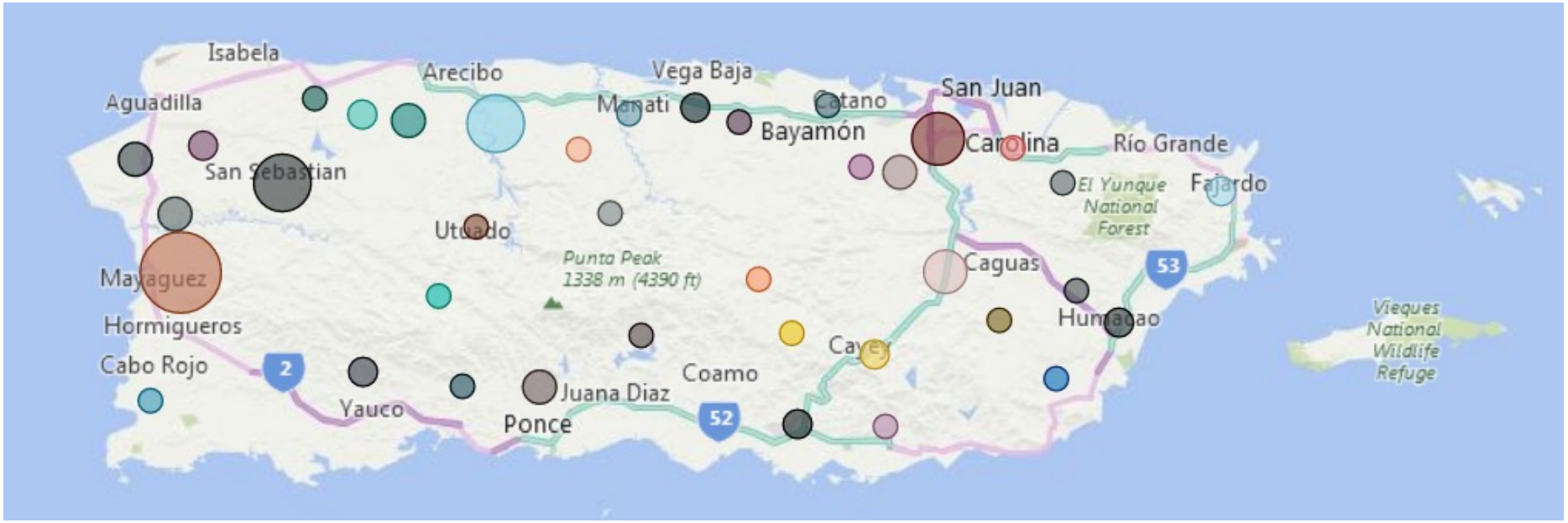




Scholars

1st Generation Students	21.7%

Geographic Student Distribution



Year 1 Participants Loss

- One (1) student from the Mechanical Engineering Department joined the program as a Participant with the expectation of receiving a scholarship.
  - He decided to drop the program because the multiple activities took time away from other academic activities.
- A second female Participant transferred from Civil Engineering to the Psychology program.
- A third male Participant moved from Surveying & Topography to Mechanical Engineering.
  - He showed a low academic performance starting from the first year in the program. Then he decided to stop participating in activities and left the program.
- A graduate student lost scholarship eligibility as she accepted a full-time job offer.

Students

Classification	Year 1	Year 2
Female	40	39
Male	52	49
Scholars	41	41
Participants	51	47
Total	92	88

- Civil Engineering and Surveying
- Chemical Engineering
- Computer Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering
- Software Engineering
- Computer Science and Engineering
- Material Science Engineering

Student Participation

- Annual Assessment Questionnaire for Students
  - Year 1 (2019-20):
    - Response rate: 78% (72/93)
    - Scholars: 57% (n = 23)
    - Participants: 43% (n = 22)
  - Year 2 (2020-21):
    - Response rate: 95% (84/88)
    - Scholars: 98% (n = 46 out of 47)
    - Participants: 93% (n = 38 out of 41)

Mentors

Mentor	Gender	Department	Year 1	Year 2
1	Male	Graduate Students	2	3
2	Male	Mechanical Engineering	16	15
3	Male	Electrical Engineering	19	12
4	Male	Chemical Engineering	15	15
5	Female	Computer Engineering	19	11
6	Male	Software Engineering and Computer Science		13
7	Female	Industrial Engineering	12	11
8	Female	Civil Engineering And Surveying	9	8
		Total	92	88

Mentoring Program

The goal is to promote a sense of belonging.

Meet individually at least twice per semester (In-person, Online).

Provided mentoring workshops.

Years 1 & 2: Mentoring process (4/2)

Year 3: Deal with crisis (1)

Mentoring Program

We asked students to:

- Evaluate the mentoring process and their mentors.
- Indicate the level of satisfaction with their mentoring experiences.
- Express the strengths and weaknesses of their mentors.

We asked mentors to:

- Describe their tasks and responsibilities in the program.
- Indicate the program's impact on their academic and research careers.
- Express how they benefited from their participation in the program.

Results

Students' Perspective

- Reported an overall excellent opinion about their mentors and the mentoring process provided through the program.
- Strengths:
  - Communication
  - Connection
  - Professionalism
  - Encouragement
- Weaknesses:
  - Poor accessibility due to lack of time
  - Felt intimidated by the mentor
  - Inadequate counseling

Mentors' Perspective

- Their tasks and responsibilities align with what students expected.
- Relationship between what mentors perceived as their duties and what mentees identified as strengths of the mentoring program.
  - Offer academic counseling
  - Encouragement
  - Recommendations for COOP and research experiences
  - Setting career goals
- Positive to establish a good relationship with the mentee.

Conclusions and Implications

In summary…

- Both students and mentors felt satisfied with their involvement in the program.
- Mentors agreed that the time and commitment required to fulfill the responsibilities in the program are limited:
  - Other obligations, such as teaching, research, and service commitments.
  - Mentees expressed concerns about the time availability of their mentors due to other professional obligations.
- The goal of the mentoring program to promote a sense of belonging in mentees during their years of study was accomplished.


Questions?