



Increasing Retention in STEM for Pacific Islander Students in Higher Education

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KML



NSF ATE



Research



Questions



01



Kewalo Marine Lab

Director, Dr. Robert Richmond



Kewalo Marine Lab

Laboratories at UH Mānoa

- SOEST
- HIMB
- PBRC/KML

Specializes - biodiversity & human effects on local marine environment

Location - 2 acres of oceanfront, south shore of Oahu

Direct access to ocean water for research

WHAT SETS US APART?



World class Research

www.kewalo.hawaii.edu

NSF grants: Education

Attract & retain
underrepresented students in
higher ed in marine science, esp.
NHPI



NSF-ATE

02

PI: Dr. Robert Richmond

NSF ATE: Advanced Tech. Educ.

Technology & Curriculum



Training on ATE
Integrated ATE in
curriculum

Infrastructure



Strengthen
resources

Partnerships



Research, Business,
GOs & NGOs

Internships



Professional
experiences &
Scientific Method

MOVIE TIME

10 min video

filmed in 2014

vimeo.com/201799208



OUTCOMES



98%



Student **INTERNS**
accepted **JOBS** in **STEM** or
pursued **University**
(2006-2017)



2000+



Students (STEM majors &
non-majors) have
DIRECTLY BENEFITED
from this program
(2016-2019)

NEXT STEPS



MARINE TECH

Business sector
Sensor repair



MENTORSHIP

Student-centered
Culturally sustainable



Research

Educational Psychology

03

ATTRACT & RETAIN

Missing the mark?

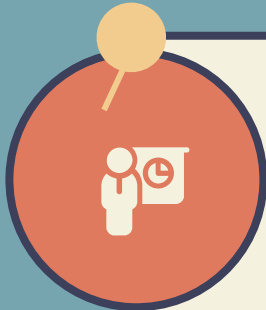


**MATCHED
ETHNICITY**

INTERNSHIPS
Nurture students'
academic aspirations
and helps them
prepare for advanced
degrees

**MATCHED
MINDSET**

BACKGROUNDS: different needs



INDIVIDUALISTIC

Networking, skill building & independence



COLLECTIVIST

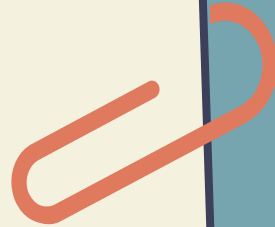
Sense of belonging & relatedness

"Culturally responsive mentors provide opportunities for students to combine the academic knowledge with their traditional knowledge, experiences, and values"

(Chan, 2008, as cited in Zorec, 2018, p. 13)

PURPOSE

Explore how:
Students experiences in
Academic and cultural mentorship
Affect their feelings of
 Belongingness
 Confidence
 Identification
Science career trajectories (Chemers et al., 2011)



THEORETICAL FRAMEWORK



Indigenous Worldview

Places students'
voices in center

(Strega & Brown, 2015)



Indigenous Theorizing Approaches

Decolonizing views

(Kovach, 2021)



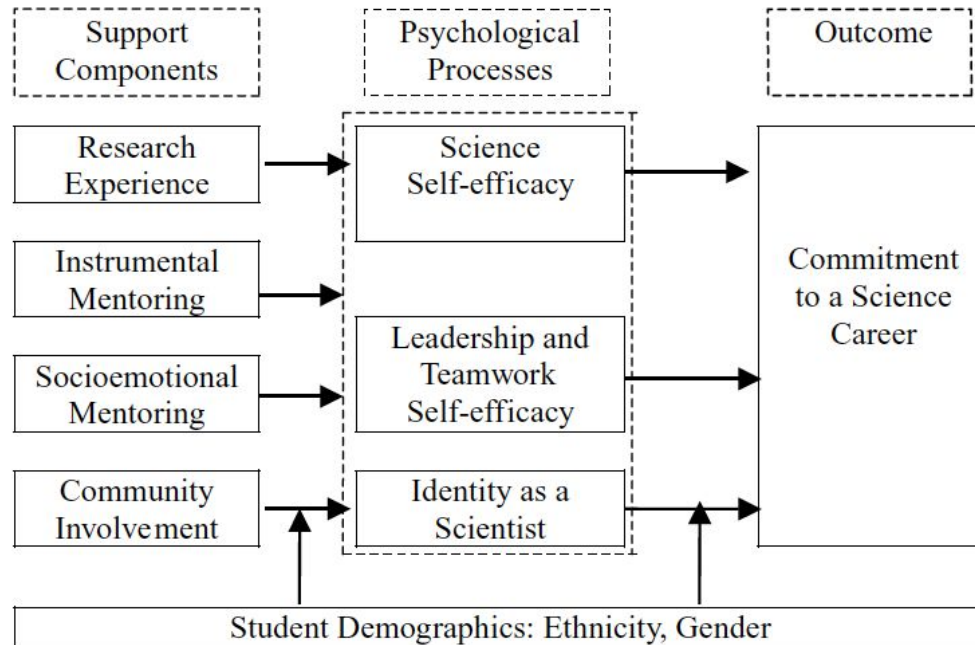
Decolonizing Feminist Approach

Fosters empathy

(Manning, 2018)

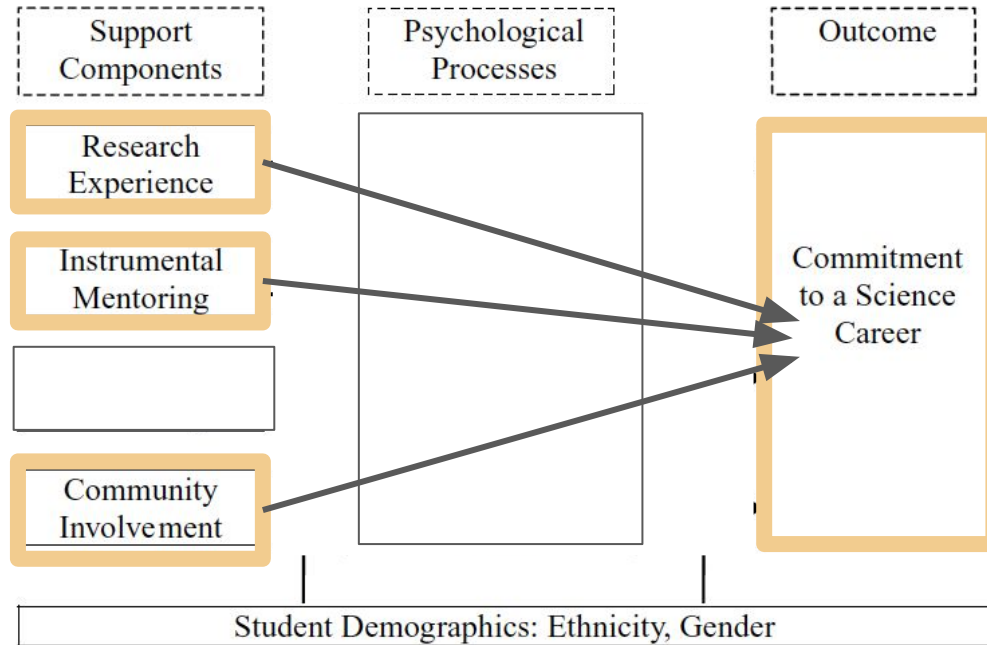
MEDIATION MODEL

(Chemers et al., 2011)



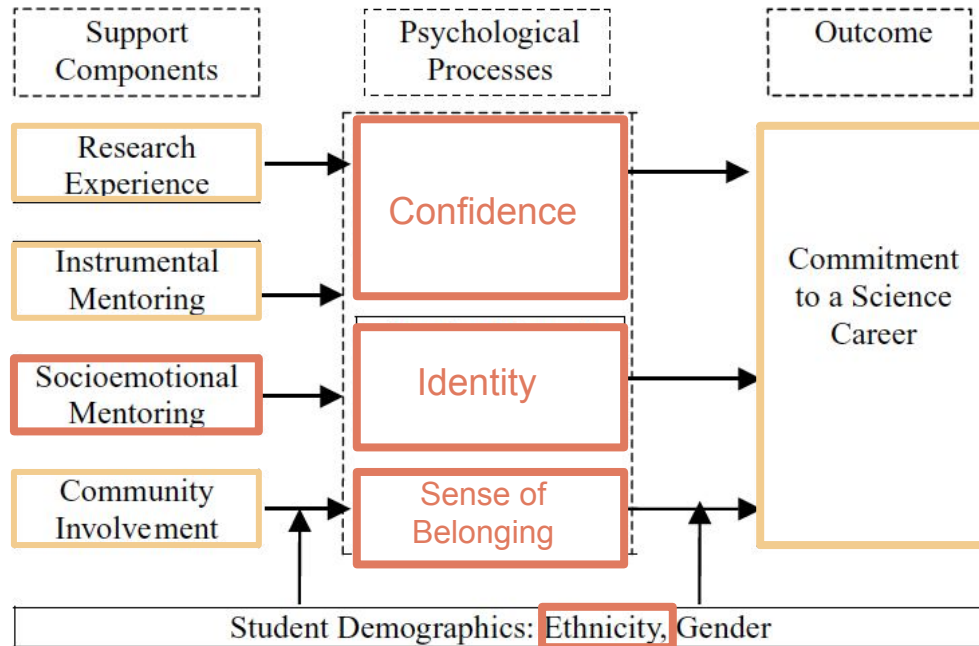
MEDIATION MODEL

(Chemers et al., 2011)



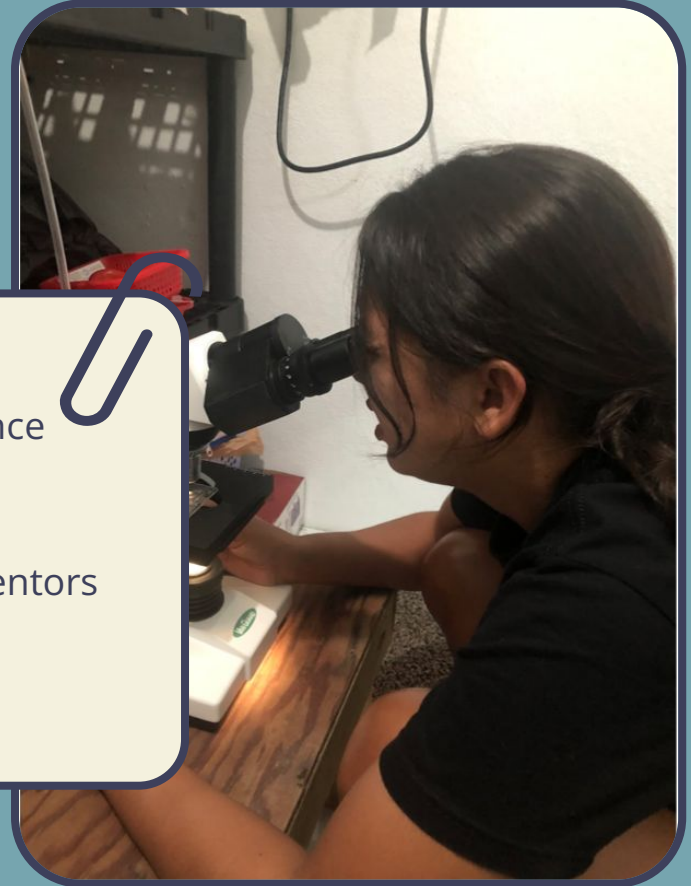
MEDIATION MODEL

(Chemers et al., 2011)



Challenges

- Culturally connected interns
- Pacific Islander students, marine science
- Preferably born same island region
- Summer 2023
- Monetary gifts for socio-emotional mentors
- Funding for students to participate in conferences regarding research



Do you have any questions?

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MAHALO

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References

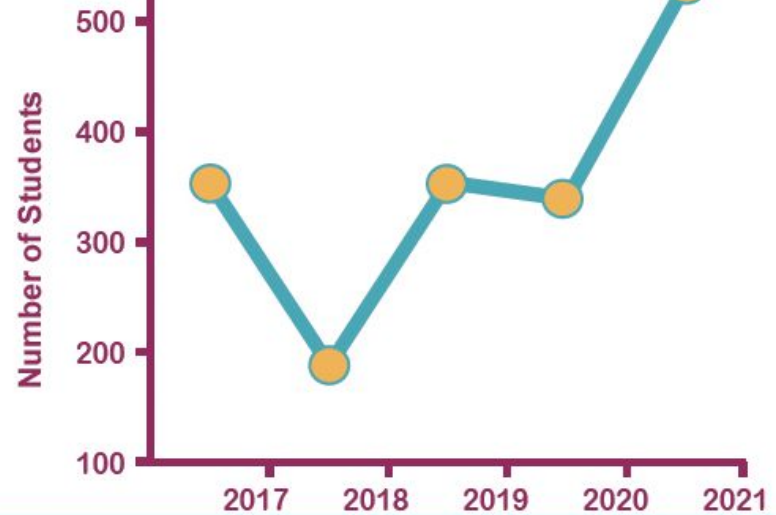
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Attracting Students



OUR DATA

Number of Students
(STEM & non-STEM majors)
enrolled in STEM courses

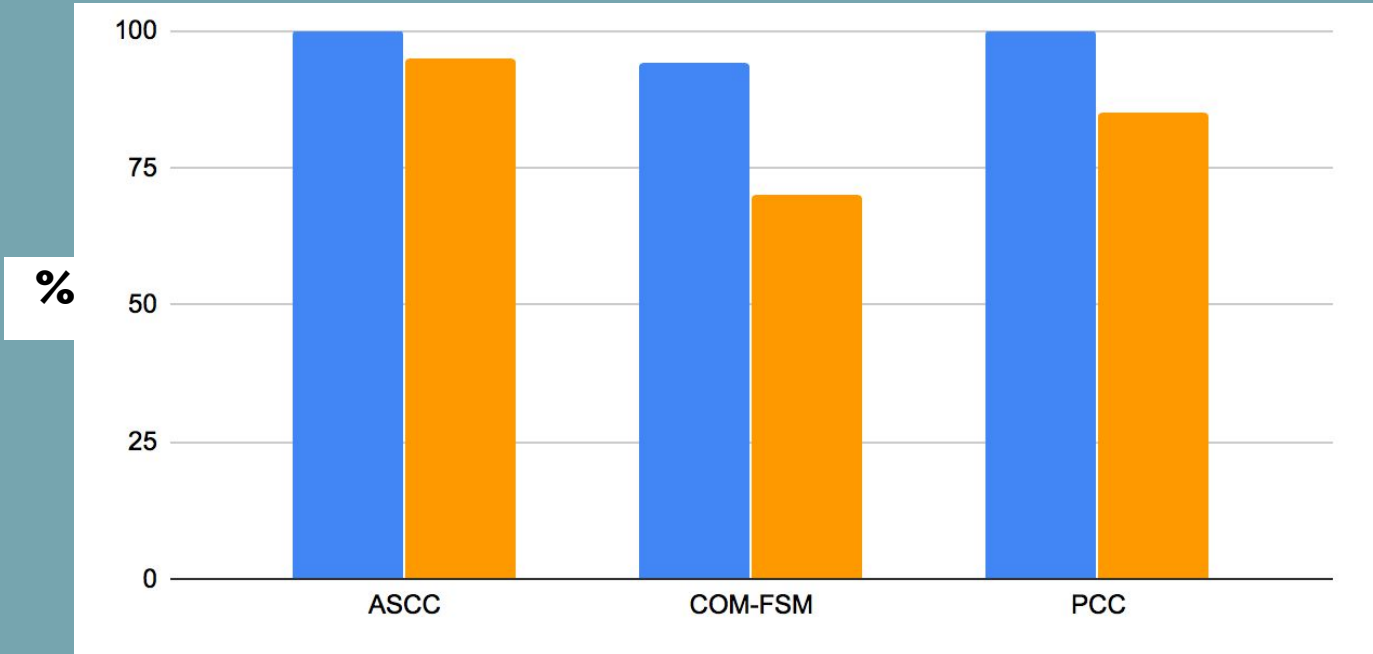


Students -> Interns

2006-2019

Graduated from marine/env science

Graduates STEM job or Univ.

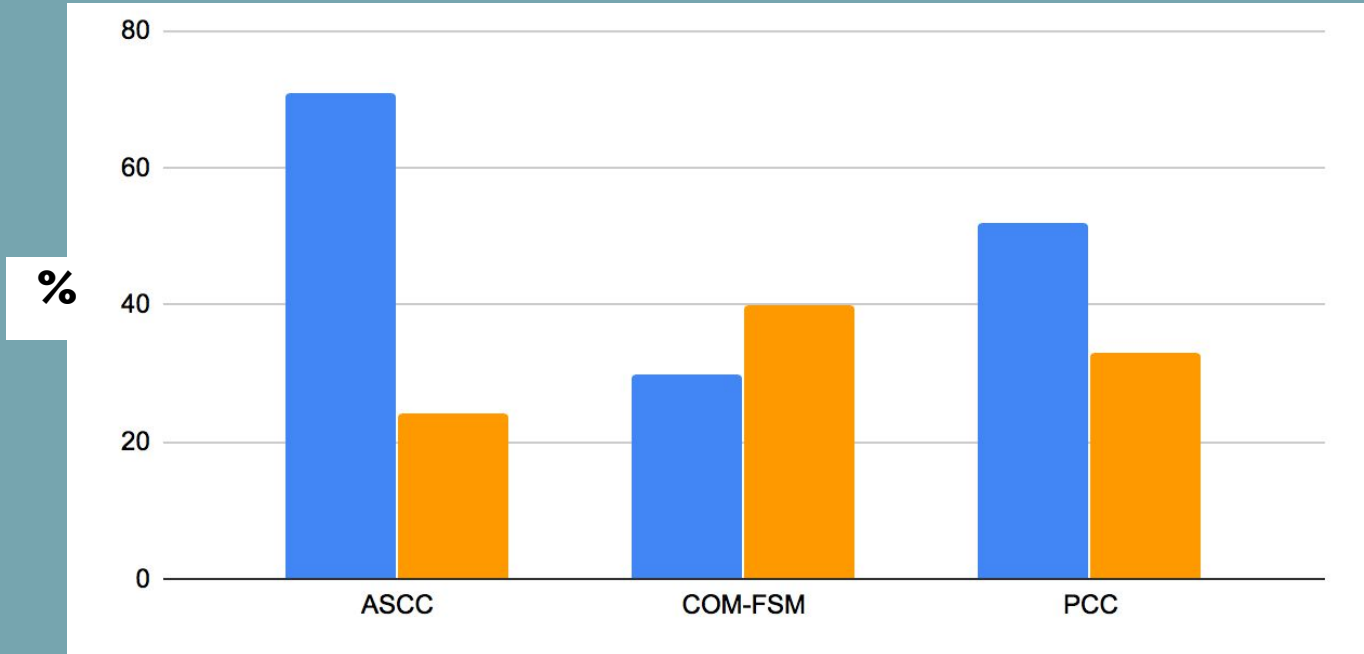


Students -> Interns

2006-2019

 University

 Job



Students -> Interns

ASCC Marine/Environmental Science Student Interns

