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Barriers and Supports for STEM Motivation for Pacific Islander High School and Undergraduate Students

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Barriers and Supports for STEM motivation for Pacific Islander High school and Undergraduate students

Shanthia Espinosa, Alma Trinidad, and Lisa K. Marriott



SEPA SCIENCE EDUCATION
PARTNERSHIP AWARD
SUPPORTED BY THE NATIONAL INSTITUTES OF HEALTH

We acknowledge the original inhabitants and traditional village sites of the land Oregon Health & Science University and Portland State University are occupying and built upon: the Multnomah, Kathlamet, Clackamas, Tumwater, Watlala bands of the Chinook, the Tualatin Kalapuya, Molalla, Wasco and many Indigenous nations of the Willamette Valley and Columbia River Plateau. We take this opportunity to thank the original caretakers of this land - past, present, and future.

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Learning Objectives

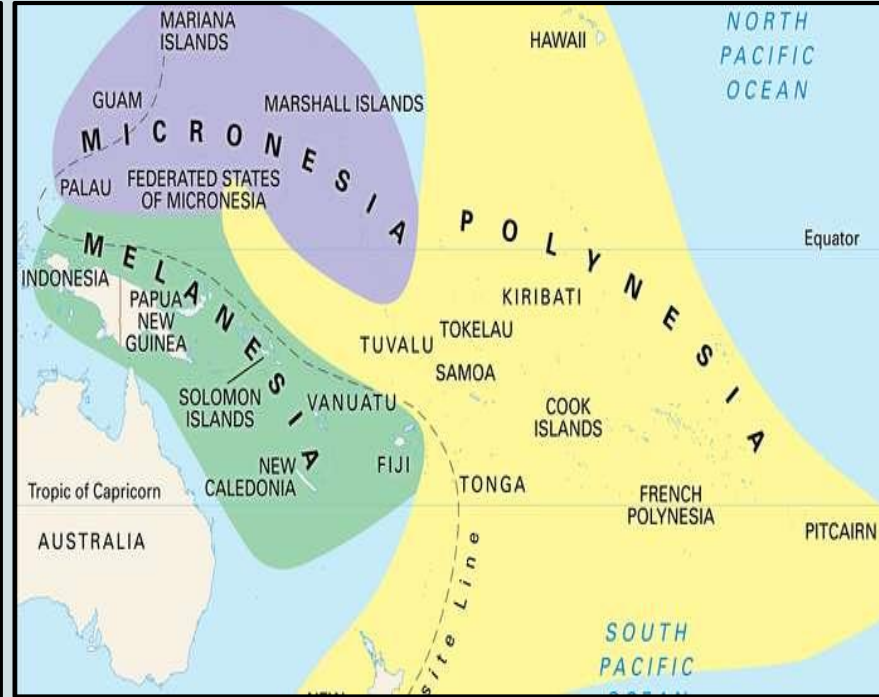
At the end of this presentation, you will be familiar with or able to:

- Identify the location and categories of the Pacific Islands
- Understand Pacific Islander barriers and support for STEM motivation
- Distinguish motivational factors that Pacific Islanders experience
- Summarize major themes based on preliminary findings

Location of Pacific Islands



Pacific Islands Categories



Introduction

Native Hawaiian Pacific Islander (PI) STEM

Research

Understand Pacific Islander barriers and support for STEM motivation

**Limited research on
NHPI communities**

**Misrepresentation
of NHPI data**

**Lack of
representation
within higher
education**

**Metrics for NHPI
student success**

Motivational factors

- Distinguish motivational factors that Pacific Islanders experience

**Access to
resources**

**First Generation
college students**

Mental Health

**Low
socioeconomic
status**

Support

Gap in Knowledge

Misrepresentation of NHPI data

This study will fill gaps in knowledge by:

- Identifying strategies for supporting student motivation in STEM for Pacific Islander (NHPI) students
- REALD supports disaggregation of NHPI populations allowing a greater understanding of support needs for NHPI students in STEM.

What is your race or ethnicity? *

(Select all that apply.)

- ☐ White
- ☐ Hispanic, Latino, or Spanish
- ☐ Black or African American
- ☐ Asian or Asian Indian
- ☐ American Indian or Alaska Native
- ☐ Middle Eastern or North African
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Some other race or ethnicity (please specify)

Ethnicity	Race
<ul style="list-style-type: none">• Hispanic or Latino• Not Hispanic or Latino	<ul style="list-style-type: none">• Black• White• Asian• American Indian or Alaskan Native• Native Hawaiian or other Pacific Islander• Other race

Methods

Recruitment: High school and Upper-division PI STEM students will be recruited across NIH-funded BUILD EXITO partner sites, consisting of undergraduates residing in 6 states and territories (Oregon, Washington, Hawaii, American Samoa, Northern Mariana Islands, and Guam).

Data Collection:

- Surveys about motivational resilience (10 min; Portland Metro STEM Partnership)
- Virtual focus groups (90 min, semi-structured) assessing strategies for STEM motivation and success for PI students. Focus groups will use stratified groups based on survey results for motivational resilience (tertiles)

Metrics for
NHPI student
success

Support

Limited research
on NHPI
communities

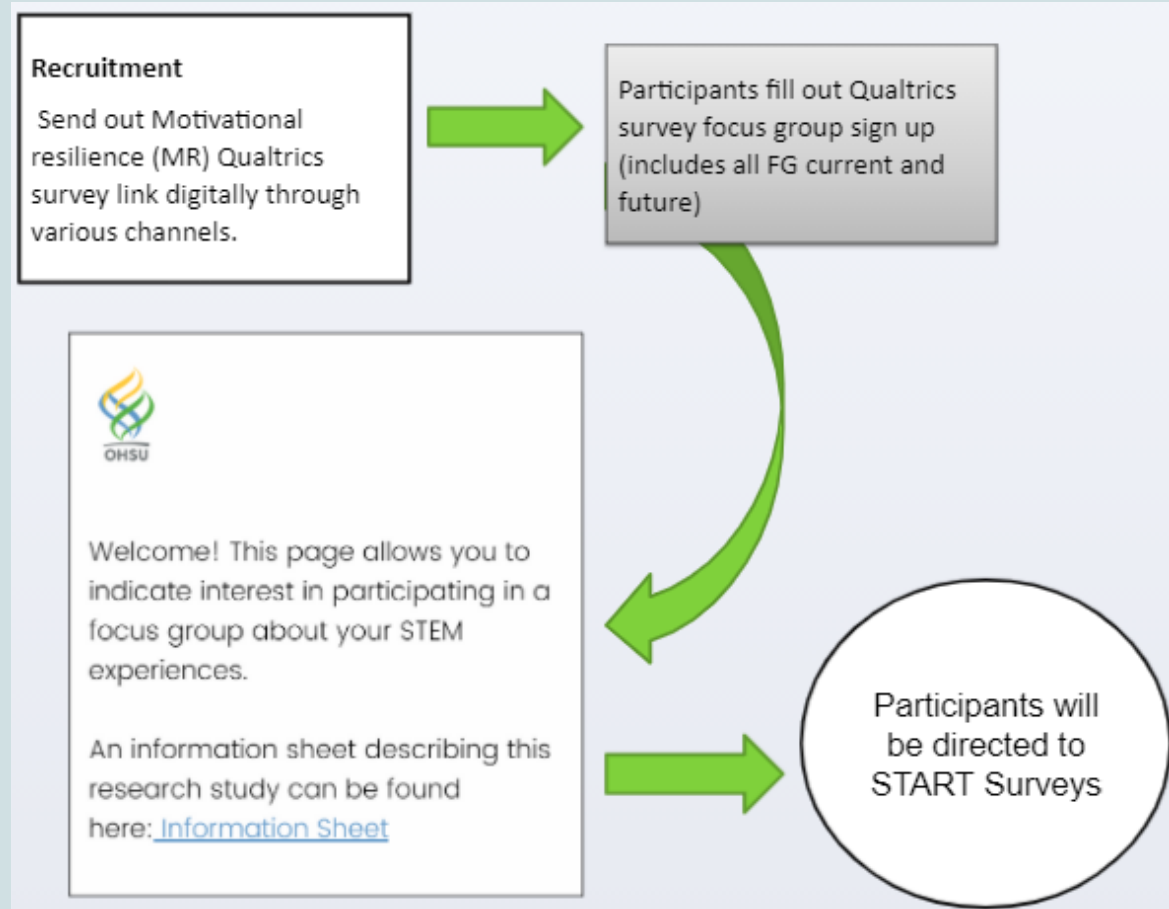
Preliminary Findings

Code (Theme)	Data Definition
Family	Pertaining to mother, father, siblings, aunts, uncles, or close and dear friend that has impacted their motivation to pursuing a STEM major/career.
Financial	Financial considerations related to pursuing STEM in higher education. Can be used positively (able to afford college) or negatively (unable to afford college). eg. scholarships, grants,
Motivation	Drive to engage in STEM higher education. Applies to factors that cause participant from archival study to follow up on their motivation of pursuing a STEM career. Can be used positively (am motivated to STEM) or negatively (am not motivated to STEM)
Navigation	Pertaining to NHPI individual trajectory and mapping of pathways to acquiring STEM degree (e.g. childhood, affiliations in teenage years, adulthood, and how STEM or biomedical fields impacted their educational journeys.
Support	Factors that influenced NHPI individual to persist (+) or give up (-) in STEM. Can be used positively (gained unended support in STEM) or negatively (lacked support in STEM)
Opportunities	Pertains to circumstances leading to a chance of great possibilities (e.g. employment, promotion, education, community etc)
Barriers or Challenges	Factors that keep NHPI individual from obtaining STEM education or career. Applies to people, e.g. family members who discourage STEM education, systemic racism, microaggressions)
Community and Inspiration	Sense of belonging and commitment and dedication of pursuing educational goals for the benefit and or support NHPI community. Could instill motivational factors.
Culturally Responsive Strategies	Pertaining to positively (immense support with) Diversity, Equity, and Inclusion or negatively implies (lack of, emphasizing great need) to incorporate more diverse, inclusive, and more equitable STEM environment for all.
Representation	Pertaining to the visibility of NHPI individuals in STEM. Could be positive (received acknowledgments, constructive criticism etc) or negative (lack of professional and research mentorship, microaggressions, opportunity)
Location	Polynesia, Micronesia, and Melanesia

Research Schedule

IRB protocol approval (OHSU IRB #22889)

- October 2022: Participant recruitment
- October - November 2022: Focus Groups
- November – December 2022: Qualitative data analysis and linkage with survey results.
- Generation of e-feedback for subsequent testing.



Data Collection:

Includes derived code,
Real D, Preliminary
data, Export from
Qualtrics, import into
SPSS, After Facilitating
focus groups,
Transcribe, Qualitative
code

Randomized PI

Display this question

If Which of the following describes your racial or ethnic identity? Please check all that apply. Native Hawaiian or Pacific Islander Is Selected

Which of the following describes your Native Hawaiian or Pacific Islander identity? Please check all that apply.

☐ Chinese

☐ Vietnamese

☐ Communities of the Micronesian Region

☐ Native Hawaiian

☐ Samoan

☐ Other Pacific Islander

Genio

Please put your day of birth (if you were born on June 23, you would write "23". If you don't want to answer, please write "99")

What is the first two letter/s of your mother/guardian's first name. (if your mother or guardian's first name is "Jane", you would write "JA". If you do not have a mother or guardian or don't want to answer, please write "XX")

FocusGroups

Which focus group(s) should we contact you about? Please select all that apply.

- ☐ Motivational Resilience (Scheduling now)
- ☐ Impulsivity (Scheduling now)
- ☐ STEM Interest (Scheduling late summer through fall)
- ☐ STEM Identity (Scheduling late summer through fall)
- ☐ Self-Efficacy (Scheduling late summer through fall)
- ☐ Mindset (Scheduling late summer through fall)
- ☐ Please contact me for other future focus group opportunities

Anticipated Research Findings

This study hope to:

- identify effective **strategies** for encouraging PI **student success** in stem.
- the anticipated results will enable a **greater understanding** and will **expand data** on PI issues impacting STEM motivation.

Acknowledgements

Si Yu'us Ma'ase and Thank you for your support!



Build Exito Faculty
and Scholars