NSOE CAIRNS Mentorship Programming

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Primary Research Question:

1. How best can an environmental diversity mentoring program serve undergraduate needs?

Background:

The 2019 Nicholas School of the Environment (NSOE) Undergraduate Diversity Pathways Strategic Plan (UDPSP) identified the need to increase diversity in their undergraduate programs. This project focuses on the development of an undergraduate diversity mentoring program. Currently, the NSOE undergraduate program demographics do not align with state or national demographics, demonstrating an underrepresentation of black and Latinx students. One method to foster diversity is mentorship programs. Undergraduate mentoring programs help retain and recruit underrepresented minorities (URM) and low-income students by providing students with the academic, social, and financial support they need (Cagle, Hadley, Thompson, 2019). Furthermore, focus group data collected in producing the UDPSP from randomly selected URM students showed favorable response to the idea of an opt-in mentoring program that would facilitate interactions with graduate students.

Accordingly, the NSOE Career and Academic Innovation and Research Network of Scholars (CAIRNS) Program was created. The NSOE wishes to attract URM and low-income undergraduates to participate in NSOE major, minor, and certificate programs. Furthermore, the NSOE strives to retain the target demographic already participating in NSOE programs by fostering conditions for success. Through this mentorship program, the undergraduate students of interest will be provided seminar and mentorship opportunities to develop academic skills and career readiness, as well as the social support needed for students to have a meaningful, valuable, and successful experience in NSOE.

Significance:

Increasing diversity at NSOE is important, because a more representative school will facilitate robust environmental problem-solving. In addition, fostering diversity will help NSOE remain competitive with other programs.

Objectives:

❖ Determine how to pair mentors and mentees based on personality, values, culture, etc.

❖ Provide structural recommendations for the mentorship program to foster academic, social, and professional support

Image 1: A cairn helps people find their path (CAIRNS, 2021).

Components of Sustainability:

Social: Increasing diversity in at NSOE will create a more culturally inclusive social environment for URM students.

Environmental: The CAIRNS program will facilitate the advancement of URM students in environmental academic programs and careers paths. Through this 'pipeline', overtime there will be a better reach into communities of like identities to increase knowledge and pro-environmental behavior change.

Economic: Creating greater economic equality and opportunity for URM students through the development of professional skills.

Methods:

Literature review

Purpose: Identify resources on best practices for mentoring that CAIRNS can use to guide the design of their mentorship program including academic journals, websites and university mentorship programs

Process: Searched key words and phrases on Google Scholar, Jstor, and ProQuest to find relevant resources. Key words and phrases included mentoring, (AND/OR) diversity, DEI, university, STEM, etc. In total, 20 reports and journal articles were reviewed.

Analysis: Each data source was thematically coded into the following categories: (1) characteristics of good mentors/mentees, (2) ways CAIRNS could improve, (3) methods of mentor/ mentee pairing, and (4) recommendations for mentor training.

Image 2: The CAIRNS program implements their "creating community & belonging" value by producing organic settings, such as in this photo, to meet and bond with potential mentors (CAIRNS, 2021).

Interviews:

Name	Title	Purpose
Jenny Wood Crowley	Co-Director of the SPIRE Fellows program (relatively new DEI program for students in STEM). Academic Dean, Trinity College	❖ Provided insight on how to create a culturally inclusive program for the first years as well as how to pilot a mentorship program
Melissa Leal	Undergraduate Senior – President of Latino American Student Organization	❖ Created the first-ever-Latino mentoring group within the organization. ❖ Shared her experience developing this mentorship group and offered advice on how to move forward in the mentor and mentee selection process and recruitment.

Results:

Characteristics of mentors for success
- ❖ Commitment to the program
    - • Ensures that participants are performing in their full capacity as mentors and are eager to be a part of the program. (Phillips-Jones, 2003),Gibson, Walters, 2004).
- ❖ Encouragement – giving recognition to mentees and sincere positive feedback. (Phillips-Jones, 2003)
    - • Encourages mentees' continued participation in the program and enthusiasm
- ❖ Key elements for successful mentor-mentee relationship: shared respect, an exchange between parties, transparent expectation of the relationship, shared values, personal connection, a discernment of altruism
    - • (MentorCruise, 2021)

Creating culturally inclusive partnerships
- ❖ "Don't force mentor relationships"
    - Forming natural relationships is critical to creating lasting mentor and mentees pairings (Crowley,2021)
- ❖ "Same-race relationships provided more psychosocial support to protegé s than cross-race relationships."
    - Same demographic mentor/mentee relationships facilitate more personal interactions (Gibson, Walters, 2004)
- ❖ "Effective mentors for diverse graduate students, noted that faculty who know their prejudices and biases are better equipped to mentor" (Apprey UVA study)
    - Ensuring all mentors understand and check their biases fosters relationships with mutual respect and trust .
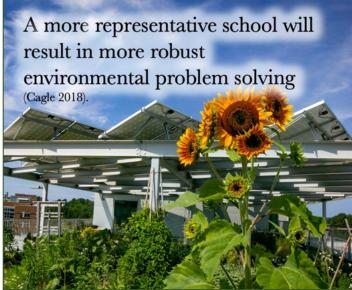

A more representative school will result in more robust environmental problem solving (Cagle 2018).

Image 3: NSOE rooftop garden (NSOE, 2021).

Characteristics of an effective program
- ❖ "Self-assessment of skills linked to effective mentoring as a means to identify one's own strengths and weaknesses"
    - For ex. Mentoring Competency Assessment (MCA), a tool designed by researchers at the University of Wisconsin Madison. This 26-item skills assessment evaluates six key mentoring competencies—maintaining effective communication, aligning expectations, assessing understanding, addressing diversity, fostering independence, and promoting professional development (Broughton, Plaisime, Green Parker, 2019)
- ❖ Effective mentors apply training and prior experience to ongoing mentor-mentee relationships
    - Reminding mentors about training content ensures implementation of skills learned. Whole curricula across numerous disciplines are available to departments and institutions, providing guidance on where and how to begin instilling foundational principles of effective mentorship (Center for the Improvement of Mentored Experiences in Research, 2018)

Limitations to research:
- ❖ Interview results based on the opinions of the subjects interviewed and may not be applicable to all DEI programs
- ❖ A further survey of Duke students would be required to determine each study's applicability to the Duke environment

Recommendations:

Objective 1: Determine how to pair mentors and mentees based on personality, values, culture, etc.

- Plan "speed dating" to facilitate natural relationships between mentors and mentees
- Conduct biyearly check-ins on the mentor-mentee relationship to ensure initial pairings are conducive to mentee's growth

Objective 2: Provide structural recommendations for the mentorship program to foster academic, social, and professional support

- Creating a compact of clear expectations and guidelines of commitment the program
- Focus mentor training on communication skills and implicit bias training
- Weekly email chain of top-of-mind training tips and topics to keep in mind every week
- Include mental health resources into the program

Image 4, 5, 6: Depiction of students and mentors interacting; representing CAIRNS three core values (**Diversity and Inclusion, Mentorship and Guidance, Community and Belonging**) as seen on their website (**CAIRNS, 2021**).

Conclusion:

Throughout this project term, the research conducted has paved the way for an informed investigation on how to help develop the NSOE CAIRNS Mentorship Program. Research has been directed towards uncovering what qualities compose a good mentor, making culturally and racially responsible mentorship pairings, and learning what type of training mentors need. These topics of discussion are relevant to the discussion of sustainability because their investigation has the potential to tackle the lack of URM groups and create a pipeline into the Nicholas School of the Environment and environmental science in general. Through literature coding and multiple interviews, researchers were able to produce conclusive recommendations concerning how to move forward with the development of the NSOE CAIRNS Mentorship Program, regarding the selection of good mentors; making successful mentorship pairings; and implementing structural recommendations for the mentorship program in general.

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