



Investigating the Lived Experiences of Underserved Students in STEM during the COVID-19 pandemic: A Phenomenological Study

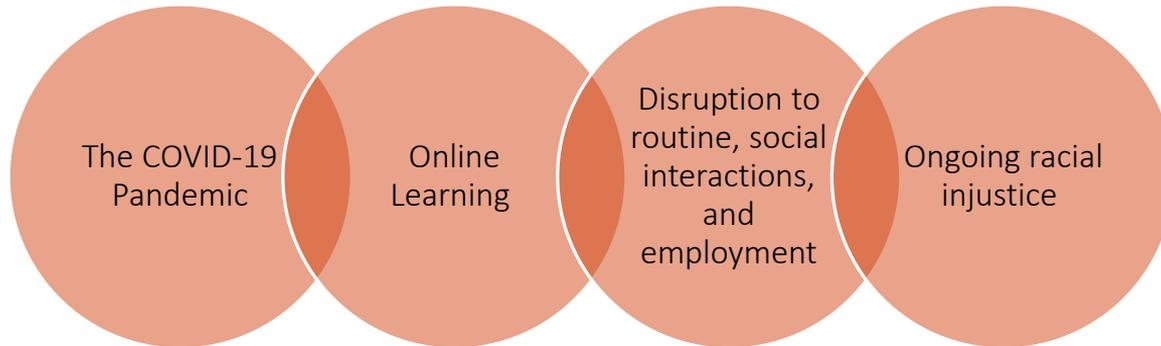
Tonisha B. Lane, Ph.D.

School of Education
Virginia Tech

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Context of the Study

This study was inspired by a desire to understand how undergraduate students of color (SOCs) in science, technology, engineering, and mathematics (STEM) were making meaning of the transition to online research experiences during COVID-19 at a research university.



Relevant Literature

Tan and Umamaheswar (2021) used the concept of “tightness” to describe how it felt for Black and Latinx students as they navigated the hypervisible structural racism during COVID-19.

This is compounded by the existing challenging racial climate experienced by many students of color in STEM fields (Johnson, 2011; Riegle-Crumb et al., 2019).

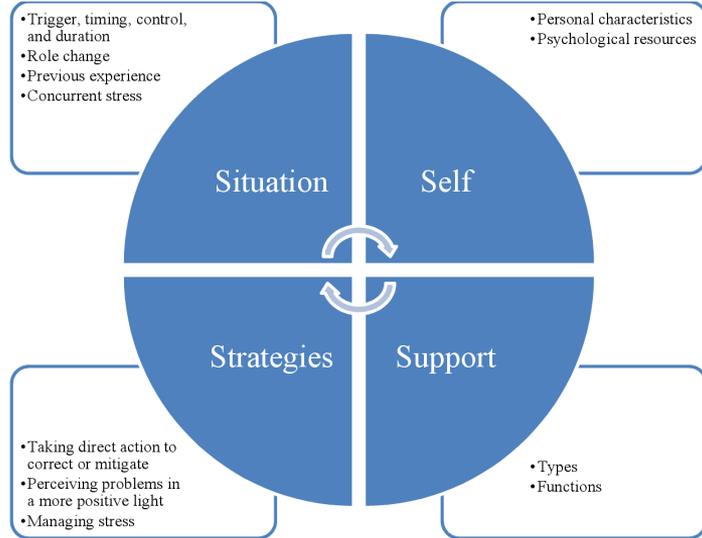
To manage new and existing stressors, Tobin et al. (1989) noted two forms of coping approaches: (1) engagement including seeking social support, cognitive restructuring, and (2) disengagement refers to strategies that attempt to remove or situate the individual away from the stressor (e.g., social withdrawal).

Faculty play an important role in creating or impeding supportive environments for students of color in STEM (McCoy et al., 2017).

Campus resources, including support groups, learning communities, undergraduate research programs, and student organizations can be helpful to students of color (Johnson, 2011; Palmer et al., 2011).

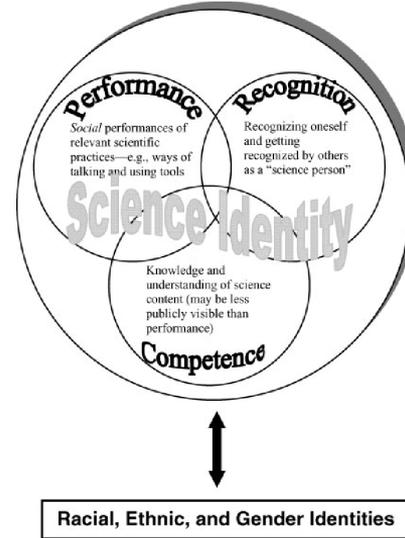
Conceptual Framework

TRANSITION THEORY



Schlossberg, 2008

SCIENCE IDENTITY



Carlone & Johnson, 2007

Research Question

What are the lived experiences of students of color in STEM, who were simultaneously engaged in undergraduate research, amid COVID-19 at a research university in the southeastern region of the United States?

Participant

Recruitment

Criterion sampling
Listserves with key
offices

Data Analysis

Developed
a codebook
Multicycle coding via
Dedoose
Thematic analysis

Data Collection

Demographic survey
Semi-structured
interviews

Data Quality

Pilot study
Multiple coders

Research Design:
Phenomenology

Participants

| Pseudonym | Race/Ethnicity | Major | Class Rank |
|-----------|-----------------------|---|------------|
| Kofi | Black | Computational Modeling & Data Analytics | Senior |
| Adrienne | Black/Latinx | Microbiology | Senior |
| Gia | Biracial, Asian/White | Biology | Senior |
| Kayla | Black | Animal & Poultry Science | Sophomore |
| Hakeem | Black, Filipino/Asian | Physics | Sophomore |



Findings

Self

Compounding and Intersecting Situational
Contexts

Supports and Science Identity Shifts

Self: Participant Profile Example (Adrienne)

Adrienne was raised by a single father. Adrienne's grandmother worked for NASA and instilled the passion for STEM within her father and brother, who both chose careers in information technology.

High expectations have contributed to Adrienne's work ethic regarding her academic pursuits.

Adrienne's interest in STEM has also been influenced by her mentorship relationships with other Black women who have served as inspiration, guides, and supports throughout her collegiate career.

During COVID-19, she was able to resume researching remotely and isolate which reduced fears of contracting the virus.

However, the impact COVID-19 has had on Black and Hispanic communities is something Adrienne feels strongly about.

As a STEM researcher, Adrienne hopes to impact change and influence environments for those who look like her.

Compounding & Intersecting Situational Contexts



Making meaning of compounding and intersecting situational contexts

Really, most times it was just more comfortable [as a person of color], to take notes and do everything without having to worry about anyone looking at me, I feel like. If there was some activity that would be aided by me having my camera on, then I would, but most times it's just watching a lecture or something. (Hakeem)

I would say it's been okay on my part. But sometimes when reading the news, especially certain news broadcasts, it becomes a racial thing and it's kind of weird to think about. I luckily have not been a victim of any of the racial things people could say about it. But seeing from afar, it's just like, "Oh, that's kind of weird that people would think like that. (Gia)

Supports & Science Identity Shifts

Recognition

- ..."she talks to me like a colleague rather than a student." (Gia)

Competence

- It definitely got me more comfortable with doing hands-on things. (Kayla)

Making Science Publicly Accessible as Performance

- "I realized dark matter itself is like a physics language word. People just don't know what it is. So, [part of my research project] was explain[ing] everything that I thought it was " (Hakeem)

Implications

Maintain undergraduate research opportunities even if they are remote in nature

Provide academic, research-related, and socioemotional support in research environments as students continue to navigate COVID-19

To support SOC's and their science identity development, treat them like colleagues or co-researchers in research environments

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Thank you!

Presenter:

Dr. Tonisha B. Lane

tblane@vt.edu