Rowan University
COLLEGE OF EDUCATION

STEM's Missing Women: Why Biology's Undergraduate Pipeline is Diverging from Career Paths

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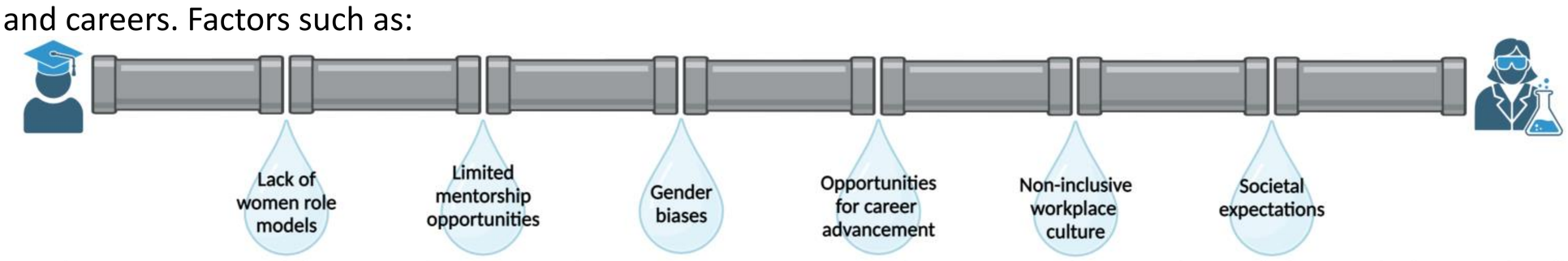
Problem of Practice

- The science, technology, engineering, and mathematics (STEM) fields are dominated by men.
- One specific area of STEM in which women outnumber men is when studying biology at the undergraduate level, where women make up over 60% of the population (National Center for Science and Engineering Statistics (NCSES) 2020-21 Report).
- Unfortunately, this does not carry over into the workforce.

Context

- Contextual factors encompass various elements that shape and influence the experiences of women pursuing biology-related education and careers. Factors such as:



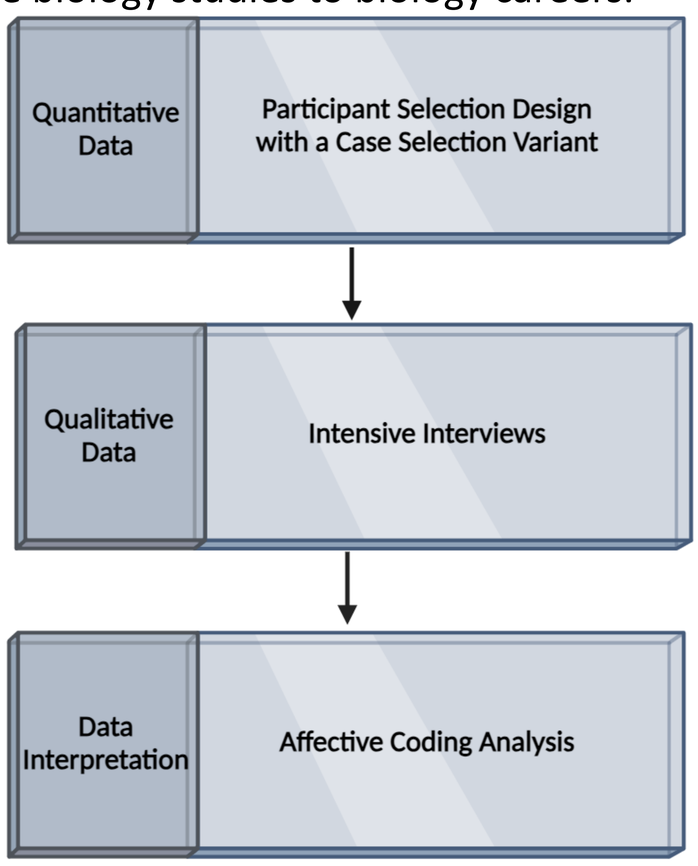
- By examining these contextual factors, the research gains a more comprehensive understanding of the multifaceted influences that contribute to the leak in the pipeline.
- Analyzing these elements within the framework of critical feminist theory helps unveil systemic inequalities and can be used to help develop potential interventions and recommendations.

Research Question

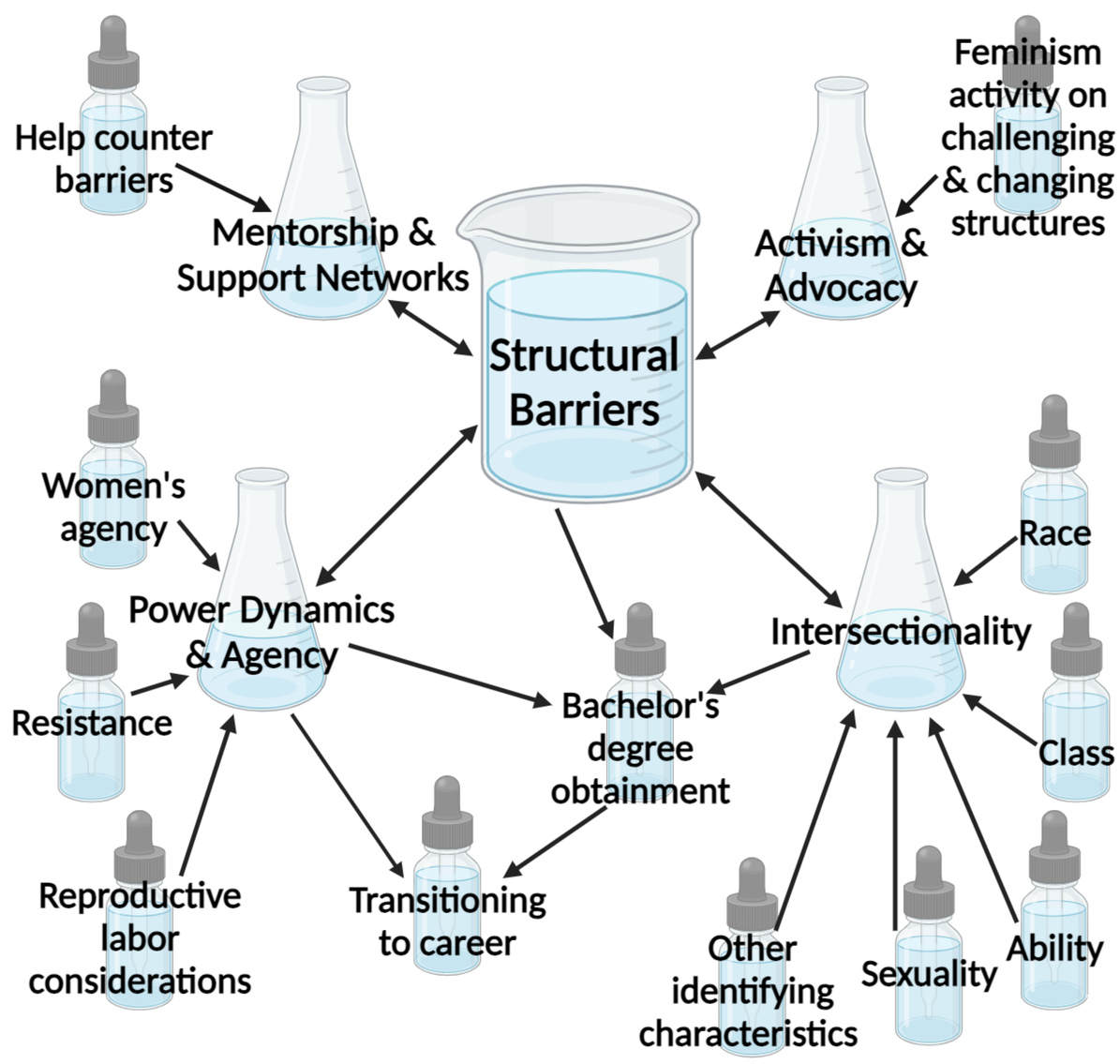
How do patriarchal structures within academic institutions, research organizations, and the broader scientific community affect the career trajectories, opportunities, and experiences of women who studied biology at the undergraduate level?

Research Design

Using a mixed methods design, specifically the participant selection model (a sequential explanatory design) with a case selection variant, intensive interviews will be conducted and followed by affective analysis to uncover the factors contributing to the leak in the pipeline for women transitioning from undergraduate biology studies to biology careers.



Conceptual Framework



Significance

This research holds paramount significance in addressing the persistent gender disparities within the field of biology. By meticulously examining the leak in the pipeline experienced by women who have successfully obtained bachelor's degrees in biology, this research aims to shed light on the structural barriers, power dynamics, and intersectional challenges that impede their seamless transition into and persistence within biology-related careers. This study is positioned at the intersection of a sequential explanatory design and critical feminist theory, offering a unique opportunity to not only uncover the root causes of the leak but also to propose targeted interventions grounded in feminist pedagogy.

Reference: *National Center for Science and Engineering Statistics (NCSES) 2020-21 Report.* National Science Foundation. (n.d.). https://ncses.nsf.gov/pubs/nsf23315/report/science-and-engineering-degrees-earned#degrees-earned-by-women-in-broad-s-e-fields