Generics in context: Examining mental biases and resources in social and science communication and learning

NSF Award #2315944 (Co-PIs Katherine Ritchie and Ny Vasil)

To remedy inequities in education, the workforce, and society we must document and communicate that disparities exist: Black and Latinx students underachieve in academia; women have trouble getting tenure in STEM, and so on. Recent research finds that this seemingly innocuous step of summarizing regularities using generic language can foster stereotyping and "essentialist" beliefs that group members' aptitudes and life outcomes are fixed and immutable, and that not much can be done about it thus sustaining and exacerbating achievement barriers for underrepresented groups. Essentialist thinking, triggered by generics, can also promote science misconceptions and interfere with understanding of core scientific phenomena. This is troubling for natural and social scientists and social justice advocates alike.

Yet, our recent work has begun to uncover conditions under which generic language does not trigger essentialism but invites "structural thinking" instead, representing regularities as rooted in stable external conditions – such as unjust social systems. While this is promising, it also presents a striking conflict requiring an investigation into when, how and why generics can accommodate such radically different thinking patterns. We take up this challenge in this project.

Our overarching goal is to provide an accurate and comprehensive psychological account of flexible generic generalizations, which is vital to supporting effective communication and science outreach, improving STEM expert training, scaffolding academic diversity, and remedying societal inequities. The specific aims of this project are (1) to develop and test a novel account of generics that sheds light on the cognitive barriers and resources shaping how people generalize and interpret generics in everyday and science communication and learning, and (2) forge and empirically assess a collaborative mentoring program benefitting minoritized undergraduate and graduate students at two Minority-Serving Institutions.

Intellectual Merit

This project will address an important gap in current theorizing about cognition and generic language, by unifying two seemingly contradictory strands of prior findings within a single framework that generates a rich set of novel empirical hypotheses and challenges widespread assumptions about the role of generics in everyday and science communication and learning. This account bridges psychology, philosophy and linguistics, and advances knowledge in these disciplines by (1) specifying fundamental psychological mechanisms that underlie generic representations, with broad implications for theories of causal reasoning, category-based inductive inference, and learning across development, and (2) offering new and critical insights into how these mechanisms create barriers and provide resources that can be harnessed for effective scientific and social communication.

Broader Impacts

This project will (1) elucidate novel ways to counteract cognitive and communicative barriers to eliminating inequities in society and science; (2) increase public scientific literacy and reduce distrust of science by identifying ways to ensure that social scientists' messages are not distorted in ways that perpetuate inequalities; (3) diversify the STEM workforce by offering advanced mentoring and intensive training in cutting-edge research to a diverse and inclusive

group of students; and (4) build capacity by forging an interdisciplinary research-and-mentoring partnership across MSIs, that will serve as a springboard for sustained and expanded efforts to improve science training, promoting student success and upward mobility for minority students in the Cal State and University of California systems and beyond.