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Community-engaged research partnerships for building capacity and training in inclusive data science

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Keywords

Cross-Sectional Studies; Diversity, Equity, Inclusion; Data Science; Intersectional Framework; Data Collection; Qualitative Research; Representation, Demographics

Abstract

Science, technology, engineering, and math (STEM) training programs share an overarching goal of enhancing education and support for their students. The desire to understand student impact is shared across disciplines and training levels, which underscores the importance of how student access, engagement, and retention in STEM are measured. Demographics should be representative of the complexity and intersectionality of student identities (National Academies of Sciences, Engineering, and Medicine, 2023; Paris et al., 2024), with Executive Orders calling for expansion of demographic data collection practices to incorporate broader categories of race, ethnicity, religion, income, geography, gender identity, sexual orientation, and disability (White House, 2021, 2023). Our recent collaborative project with equity-focused researchers and STEM partners defined a set of expanded demographics that facilitate inclusive measurement of individual identities and their intersections between different demographic factors (Paris et al., 2024), which are integrated into informatics platforms (Let's Get Healthy! and STEM Assessment and Reporting Tracker; www.startinstem.org) that deliver tailored educational feedback about health and STEM development. In August, 2023, OHSU received a new five-year Science Education Partnership Award from the National Institutes of Health's Office of Data Science Strategy to expand data science training for middle and high school students.

Project Aim

The collaborative project aims to 1) identify considerations for inclusive demographic data collection and responsible reporting; 2) establish a training collaborative that aligns qualitative research with data science outputs to enhance authentic representation of a diverse biomedical workforce; and 3) characterize how demographic data are used to make decisions and inform practice. This presentation invites students, staff, and faculty to engage in conversations around inclusive demographics and share considerations for improving data science training to younger students.

This project is approved by an overarching Institutional Review Board study entitled “Biomedical Workforce Development” (OHSU #22889) that enables cross-sectional and longitudinal research with students from elementary school through retirement, representing the full spectrum of schooling and career. This presentation will apply considerations from Paris and colleagues (2024) to engage in dialogue that builds an interprofessional network of undergraduates, graduate students, and professional partners interested in supporting youth training and representation of a diversity of identities in STEM. Together, we will establish a communication network that facilitates connection with our multidisciplinary partners to accelerate educational scholarship, training, and outreach related to inclusive data science. As we continue to identify considerations for capacity and training in inclusive demographic data collection and responsible reporting across intersectional demographics, we enthusiastically invite fellow researchers, scholars, and colleagues to join our efforts and share their unique perspectives to promote diversity, equity, inclusion, and accessibility within biomedical workforce development.

Learning Objectives

At the end of the session, the learner will:

- Identify resources to connect with the research team around equitable data science training.
- Consider ways to enhance authentic representation of diverse student identities in STEM education and biomedical science.
- Describe the impact of demographic data on decision-making and practices in STEM education programs for middle and high school students.
- Identify transferable research skills associated with inclusive data science training for K-12 students.

References

1. Gómez, L. E., & Bernet, P. (2019). Diversity improves performance and outcomes. Journal of the National Medical Association, 111(4), 383–392. https://doi.org/10.1016/j.jnma.2019.01.006

2. National Academies of Sciences, Engineering, and Medicine. (2023). Advancing Antiracism, Diversity, Equity, and Inclusion in STEMM Organizations: Beyond Broadening Participation. Washington, DC: The National Academies Press. https://doi.org/10.17226/26803.

3. Paris, S.E., Dinno, A., Marr, M.C., Raz Link, A., Lentz, B.L., Setthavongsack, A., Espinosa, S.N., Shusterman, G., Abel, J., Harrison, K., Hook, J., Alvord, T.W, Richardson, D.M., Chase, K., and Marriott, L.K. (2024). Inclusive approaches for measuring demographics of historically underrepresented populations in STEM and biomedical research training programs. Journal of STEM Outreach, 7(2), 1-22. https://www.jstemoutreach.org/article/92768-inclusive-approaches-for-measuring-demographics-of-underrepresented-populations-in-stem-and-biomedical-research-training-programs

4. White House (2021, June 25). Executive Orders on Diversity, Equity, Inclusion and Accessibility (#14035). https://www.whitehouse.gov/briefing-room/presidential-actions/2021/06/25/executive-order-on-diversity-equity-inclusion-and-accessibility-in-the-federal-workforce/

5. White House (2023, February 16). Executive Order on Further Advancing Racial Equity and Support for Underserved Communities Through The Federal Government (#14091). https://www.whitehouse.gov/briefing-room/presidential-actions/2023/02/16/executive-order-on-further-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/