Diversity and Inclusion in Open Science

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Definitions

- Diversity
  - The fact, condition, or practice of including or involving people from a range of different social and ethnic backgrounds, and of different genders, sexual orientations, etc. (https://www.oed.com/dictionary/diversity_n?tab=meaning_and_use#6305053 1.d.)
- Inclusion
  - The action, practice, or policy of including any person in an activity, system, organization, or process, irrespective of race, gender, religion, age, ability, etc. (https://www.oed.com/dictionary/inclusion_n?tab=meaning_and_use#796447 1.b.)
- Open Science
  - Open science is the movement to make scientific research and its dissemination accessible to all levels of society, amateur or professional. Open science is transparent and accessible knowledge that is shared and developed through collaborative networks. (https://en.wikipedia.org/wiki/Open_science)

Who can access open science?

- Open to everyone (theoretically)
- Available with an internet connection and a connectible device
- Not limited to specific labs
- Data is available freely

Who can produce open science?

- Open to everyone (theoretically)
- Available with an internet connection and a connectible device
- Limited by resources
  - Financial
    - Available funding
  - Social
    - Attitudes around publishing open access- often lower impact factor

Open Science is not Free Science

- Variety of agencies working towards open science
- Lots of journals moving towards open access

- Nothing is free- all of these processes require labor, therefore costs

- Agencies must pay staff
- Journals must pay staff, often want to make a profit
- Universities pay researchers to produce output

Who is excluded?

- These costs can exclude many different groups from sharing work openly
  - Early career researchers/junior faculty
  - Women and gender minorities
  - Researchers of color
  - Researchers without job stability
- The movement fails to acknowledge the "systematic barriers that make open science more accessible to some scientists than others, nor any respect for the steps taken to overcome some of these barriers." (https://www.americanscientist.org/article/open-science-isnt-always-open-to-all-scientists)

Reproducibility as equity

- Guidelines for Transparency and Openness Promotion (TOP) in Journal Policies and Practices: "The TOP Guidelines"
  - Lists 8 open science standards for journals to implement
    - Includes transparency of a study's design, analysis, data, and code
    - Encourages submission of replication studies of research published in journals
- Preregistration in public registries
- Allows researchers to study a variety of populations using same methods

Reduction of duplication

- Majority language for scholarly publications is English
- Work done may be duplicated because researchers cannot read previous research
- Having research and study details openly available allows for more reach, translation of research

Steps that can be taken

- Recognize a broader set of publication options
- Preregister methods for studies
- Reproduce studies in different populations
- Search all the literature, not just English language publications or posts
- Provide support to the groups usually underrepresented or excluded from participating openly in open science

References

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