PHIL_OS: Engagement

Richard Williams

The Philosophy of Open Science for Diverse Research Environments is funded by the European Research Council (ERC) under the Horizon 2020 Research and Innovation program [Grant Agreement 101001145]

Phil_OS: Engagement

Overview

- *Five Pillars*
  - 1: Diversity and Inequity
  - 2: Research Assessment
  - 3: Data Infrastructures
  - 4: Artificial Intelligence
  - 5: Misinformation
- *What have we done?*
- *How is this expanding and continuing?*
  - What are the priorities given the very many opportunities and challenges?
- *Common threads reframed for different challenges and publics*
  - The double-edged sword of how ethics and knowledge interact

Pillar One: Diversity & Inequity

OS and Ethics: What have we done?

- *Institutions:*
  - TUM Public Science Lab [link]
  - Ethical Data Initiative, TUM [link]
- *Media:*
  - Webinar "When Open Publishing Is Not Fair" [link]
  - Panel discussion "Present, Past and Future of Philosophy of Science" [link]
  - HPS Podcast on The Philosophy of Open Science [link]
  - Interview on Philosophy of Open Science [link]
- *Talks:*
  - PSA 2024 Symposium "Openness and Inequity in Research"
  - Anchor teacher WTMC Summer School 2022 "Opening Up Diversity" [link]
  - Keynote, EuroScience Open Forum 2024 (#ESOF2024) "The Multiple Lives of Excellence: Diversifying Open Science"

Pillar One: Diversity & Inequity

OS and Ethics: What should we do?

- Diversity promotes socially responsible research:
  - Exclusion is unfair
- Diversity promotes epistemically reliable research:
  - Exclusion makes research fragile

- Inequity acts as a barrier to entry
- So, inequity makes research less fair and more fragile
- OS - material and social conditions have ethical **and** epistemic significance
- Diversity-Friendly OS - equitable material and social conditions needed for a fair and robust OS

Pillar Two: Research Assessment

OS and Good Science: What have we done?

- *Media*

- Article for Crop Research Institute of Kumasi, Ghana, 2023 [link]

- Interview for Nature feature article "How to make your scientific data accessible, discoverable and useful." Nature 618, 1098-1099 (2023) doi: https://doi.org/10.1038/d41586-023-01929-7 [link]

- Video of Ada Lovelace Webinar on COVID-19 Lessons on Data Protection, 2021 [link]

- Video of Centre for Open Science symposium talk 2021 "The Scientific and Social Implications of Implementing Open Science Policies and Procedures" [link]

- *Talks*

  - Keynote, Statistics, Data and Scientific Integrity Conference, Flemish Interuniversity Council "Research Integrity, Data Quality and Fair FAIR Data" [link]

  - Keynote, Scholarly Publishing Munin Conference "Human-Centric Open Science: Shifting Practices and Social Significance for Scholarly Publishing" [link]

  - Keynote, International Symposium, University of Bologna "Reproducible, Reliable and Responsible Research: How Open Science Can Help" [link]

  - Keynote, Open Science Conference, Belgian Presidency of the European Union, "Human-Centric Open Science" [link]

Pillar Two: Research Assessment

OS and Good Science: What should we do?

- Standardised Research Assessments
- Assumes a “gold standard”
- A universalising “gold standard” is insensitive to context
    - Scientific context: specific methods and models for specific goals
        - Risks of fragile practices and unreliable research
    - Social context: different resource access across different communities
        - Risks of unfair practices and irresponsible research

- Localised Research Assessments
    - Freedom to take qualitative data seriously
    - Transdisciplinary research, allowing for nonstandard collaborations
- Trust in research communities:
    - Local research communities have context-specific knowledge and know-how about what qualifies as good research in their specific scientific and social context
    - Local research communities care about good research
    - Judicious relationships - close communities can critically collaborate with each other
- Socially responsible research: promises fair practices
- Scientifically reliable research: promises robust practices

Pillar Three: Data Infrastructures

OS and Institutions: What have we done?

- *Institutions*
  - Harvard Data Science Review [link]
  - European Commission [link]
  - FAIR-IMPACT [link]
- *Media*
  - Video, Brazilian book launch "Scientific Research in the Era of Big Data" [link]
  - Keynote for Flemish Royal Academy of Science, "The Many Faces of Reproducibility" [link]
  - Video Seminar, Zenodo "Democratization of Data" https://doi.org/10.5281/zenodo.5546659 [link]
  - Video of IRSA Distinguished Lecture, "Reproducing Reproducibility: The Role of Research Environments" [link]

- *Talks*
- Keynote, STS Conference Graz 2022 "Open Science Beyond 'Sharing'" [link]
- Keynote, International Conference "Big and open data for development: Mind the gaps" [link]
- Keynote, ISHPSSB Plenary Session "Open science, data sharing and solidarity: who benefits?"

Pillar Three: Data Infrastructures

OS and Institutions: What should we do?

- Data infrastructures are needed to preserve data quality
  - But resource-intensive!
    - The formats, software and skills change as scientific and social needs change
- Resources for preserving old research or producing new research?

- Digital divide: data-driven research privileges high-resource environments and marginalises low-resource environments
- Inclusive development
  - Diversity-friendly
  - Fairer and more robust

Pillar Four: Artificial Intelligence

OS and Technology: What have we done?

- *Institutions*
  - CReAITech, The Center for Responsible AI Technologies [link]
  - IDSAI, Institute for Data Science and Artificial Intelligence, “Data Governance, Openness and Ethics” [link]
- *Media*
  - Panel Video, Harvard University, “Amid Advancement, Apprehension, & Ambivalence: AI in the Human Ecosystem” [link]
  - Video, Ethical Data Initiative at the TUM Think Tank, “Why Data Ethics in the Age of XAI?” [link]
- *Talks*
- UKBCB, UK Conference of Bioinformatics and Computational Biology “Artificial Intelligence” [link]
- Keynote, International Symposium, “AI for Democratic Societies”
- TIPS, Trust in Philosophy and Science Centre, Keynote, “Engaged Empirical Inquiry in the Age of AI: The Question of Research Environments” [link]
- RoRI, Research on Research Institute, “Can AI Be Responsible? Linking Research Governance and Practice”
- Keynote, Multi-Stakeholder Workshop, “Why Ethical Data in the Age of XAI” [link]

Pillar Four: Artificial Intelligence

OS and Technology: What should we do?

- Big Data - AI to the rescue?
  - AI black-boxes
    - XAI needs specialist capacity for technical understanding
    - Quality, trust, legitimacy
  - AI Monopolies
    - Resource-intensive research captured by the richest private corporations (Google)
      - Power to set the agenda
      - Commercial interests dominate public interest
      - Inefficient
- Fragile science
  - Convenience AI:
    - What does this mean? With which criteria?
    - AI may makes some research practices “convenient”, but with which long-term implications?
    - Then, research is made for the convenience of AI rather than vice versa
  - Filter on diversity needed for responsible and reliable research

Pillar Five: Misinformation

OS and Democracy: What have we done?

- *Media*
- Video, “Evidence and Democracy” [link]

- *Talks*
- International Symposium, TUM Munich, “Understanding Misinformation”
- International Conference, Lorenz Centre, “Facts, Fake and Fiction: An Interdisciplinary Analysis of the Dissemination of Information” [link]
- Keynote, International Conference, Prague University of Economics and Business “Shifting perspective on AI for democratic society: convenience, misinformation and the struggle for planetary health” [link]

Pillar Five: Misinformation

OS and Democracy: What should we do?

- In politics, we often must make time-sensitive decisions on incomplete information
- Follow the evidence?
  - Evidence≠Facts
    - Evidence can conflict and mislead
    - Evidence is produced to serve specific scientific and social goals
- Follow the experts?
  - Plurality of scientific authorities in and across scientific disciplines

- Fact-checking
  - Ineffective: slow, uncertain & disputed
  - Normative approach to misinformation favours generalisable, machine-readable, formalised forms of fact-checking
- Narrative-checking?
  - Narrative structures the meaning of new information
  - Situated view: sensitive to the various ways in which meaning is attributed to data, including scientific and social narratives of different publics
- Transdisciplinary engagement
  - Key to any socially relevant use of technology, esp. to framing what ‘public interest’ is being served

Pillar Five: Misinformation

OS and Democracy: What should we do?

- The democracy/experts debate: legitimacy vs competency
- Are experts competent authorities?
  - Evidence is fragile
    - RCTs often lack external validity
    - Data is situated
  - Expert failure: experts are human, too
- Philosophy/policy engagement: constructive collaboration to promote responsible use of evidence
- Are experts legitimate authorities?
  - Elections encourage politicians to represent the public
  - What encourages experts to represent the public?
    - (Diversity-friendly) Open Science helps to legitimise expert authority in public policy and politics
    - Nonexperts can trust experts under conditions of (DF)OS

End

The Philosophy of Open Science for Diverse Research Environments is funded by the European Research Council (ERC) under the Horizon 2020 Research and Innovation program [Grant Agreement 101001145]