




Research environments and diversity

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Towards a Philosophy of Open Scientific Practices: Comparing Research Environments

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Achat Hotel Kaiserhof, Kaisersaal, Papiererstraße 2, 84034

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- What are research environments?
 - How should we understand them?
 - Which different sorts of research environments are there?
 - Why should we think about them?

Research environments

- Scientific inquiry takes place under highly intertwined conceptual, material and social conditions, including:
 - researchers' background knowledge, skills and goals
 - physical tools and resources (samples, instruments, reagents)
 - social norms, venues, and institutions...
- These conditions affect the development and contents of scientific knowledge

Research *environments*

- What resources can biology offer for conceptualising research environments?
 - E.g., ecological niche, organismal environment, niche construction
- And how should we approach biological thinking about social phenomena?

Topical Collection: The Nature of Research Environments

European Journal for Philosophy of Science.

<https://link.springer.com/collections/ciccfaifcj>



...and a few more articles to come!

Showing 1–7 of 7 articles

Epistemic niche construction and non-epistemic values: the case of 19th century craniology

Matteo De Benedetto & Michele Luchetti

Paper in History and Philosophy of Science | Open access | 01 April 2025 | Article: 20



Conceptualising research environments using biological niche concepts

Rose Trappes & Sabina Leonelli

Paper in the Philosophy of the Life Sciences | Open access | 01 March 2025 | Article: 11

Research labs as distributed cognitive-cultural systems

Nancy J. Nersessian

Paper in History and Philosophy of Science | 17 October 2024 | Article: 55



Research environments vis-à-vis biological environments: ontological parallels, epistemic parallax, and metaphilosophical parallelization

Alejandro Fábregas-Tejeda

Paper in General Philosophy of Science | Open access | 13 September 2024 | Article: 46



Niches and Niche Construction in Biology and Scientific Practice

Joseph Rouse

Paper in the Philosophy of the Life Sciences | 16 August 2024 | Article: 42

Correction to: Exploring the socio-ecology of science: the case of coral reefs

Elis Jones

Correction | Open access | 20 July 2024 | Article: 33

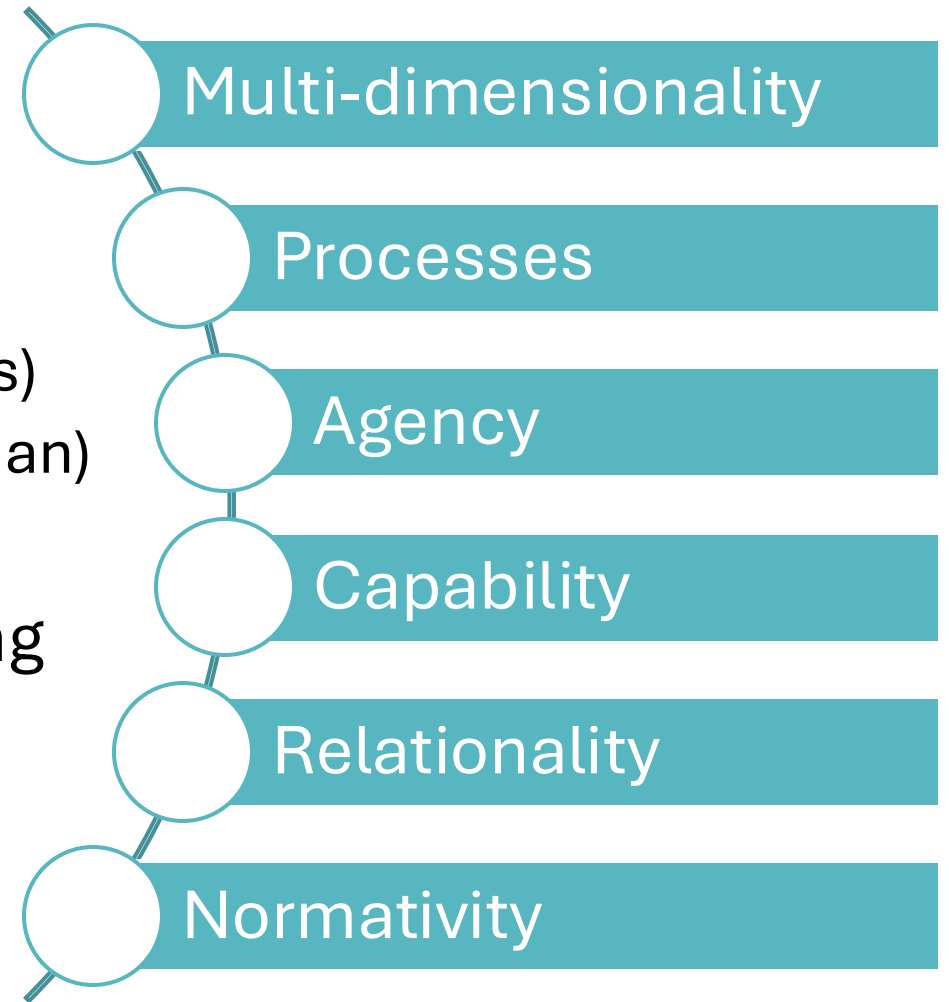
Exploring the socio-ecology of science: the case of coral reefs

Elis Jones

Paper in the Philosophy of the Life Sciences | Open access | 20 June 2024 | Article: 29

Research niches

- Niche-based theories of scientific practice
 - a) Conceptual ecology (Stotz and Griffiths)
 - b) Cognitive niche construction (Nersessian)
 - c) Scientific niche construction (Rouse)
- Six-part framework for conceptualising research niches



Transdisciplinary research environments

- *Research multiplexes*:
 - research environments characterised by diverse and sometimes conflicting conditions which require scientists to navigate tensions and negotiate (typically local and temporary) ways to move forward.
- ❖ Folds, tensions, dynamicity
- Individual researchers need to:
 - negotiate tensions between diverse, divergent, and dynamic commitments and demands
 - leverage unexpected exchanges or collaborations towards fruitful forms of discovery

Where do research environments take us?

- Expand focus from programs and disciplines to wider sets of material, social and conceptual elements of scientific practice
- New research questions and directions, e.g.:
 - Relationship between research environments and researchers' agency, development, and outputs
 - Active role of researchers in constructing, navigating, and responding to research environments
 - Alignment or misalignment of components of research environments

A Philosophy of Open Science for Diverse Research Environments



- What sort of diversity are we talking about here?
- How does diversity affect science?
- How does it affect philosophy of science?

19/07/24 Introducing feminist and postcolonial philosophy of science
02/08/24 Two classical theories: Strong objectivity and well-ordered science
16/08/24 Epistemic justice and injustice in science
30/08/24 Extractivism
13/09/24 Epistemic oppression
27/09/24 Some benefits of diversity in epistemic communities
11/10/24 Modeling diversity
25/10/24 Epistemic exploitation and liberatory epistemology
08/11/24 Diversity, Disadvantage and Open Science
29/11/24 Linguistic Justice
2025
07/02/2025 Diversity of values in science
28/02/2025 Multiculturalism and diversity work in academia
14/03/2025 Creativity
28/03/2025 Epistemologies of Ignorance
11/04/2025 Diversity and Information Systems
25/04/2025 Funding
09/05/2025 Choose your adventure
23/05/2025 Debating diversity
06/06/2025 Division of Epistemic Labour
20/06/2025 Pluralism and local epistemologies
04/07/2025 Thinking about global epistemologies

Epistemic Diversity Reading Group

International online fortnightly
reading group, co-organised with
Nathanael Sheehan

So many concepts!

With Nathanael
Sheehan and Rena
Alcalay, building an
interactive dictionary
and conceptual map



Diversity in epistemic communities



Situational or demographic diversity

- social categories or identities, e.g., gender, age, race, class, disability



Epistemic or cognitive diversity

- epistemic or cognitive resources, e.g., experience, information, heuristics, interests, methodologies, assumptions, theories

Some theses about epistemic diversity

- Situational and epistemic diversity are often linked, though not always
- Epistemic diversity can deliver epistemic benefits
 - e.g. objectivity, rigour, productivity, creativity
- Mechanisms are needed to ensure epistemic diversity is *effective*
- Need to address issues of exploitation, coercion, and injustice

(Fehr 2011, Steel et al. 2021, Wylie 2006, etc.)
see our reading list for further references

Diverse research environments

- How does diversity in epistemic communities relate to diversity of research environments?
- Are there different types of diversity of research environments, just as there are for epistemic communities?
 - i.e., diversity of social and material conditions vs epistemic resources
- Should we distinguish diversity within and diversity amongst research environments?
- Is diversity within/amongst research environments a dimension of diversity within epistemic communities?

Thanks 😊

Publications on research environments and on diversity

Trappes, Rose, and Sabina Leonelli. 2025. “Conceptualising Research Environments Using Biological Niche Concepts.” *European Journal for Philosophy of Science* 15 (1): 11. <https://doi.org/10.1007/s13194-025-00640-w>.

Leonelli, Sabina, and Rose Trappes. Under review. “Research in the multiplex: Navigating tensions and opportunities in transdisciplinary environments” *European Journal for Philosophy of Science*

Trappes, Rose. Submitted. “Global Citizen Science as a Source of Epistemic Diversity: The Case of eBird India” *Social Epistemology* (special issue Openness and Inequity in Scientific Research)



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