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Good science across diversity of research environments

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Zoom link for on line participation: https://unive.zoom.us/j/86510857896

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Background for discussion

Science is a global phenomenon, but the research sites that are responsible for producing scientific results across the world are highly diverse – culturally, technologically, institutionally.

Diversity has often been praised in philosophical terms: theoretical perspectives and styles of reasoning have been seen as an added value to producing 'good' knowledge.

However, in practice, communication and exchange of information among diverse research sites – though crucial to the success of science as a global phenomenon – often proves problematic. Openness of results, and wide circulation of them, do not automatically guarantee epistemic success. The acceptance of science products coming from individual sites meets with controversy, and often lack of consensus.

Trusting the reliability of results coming from 'other' contexts, cooperating in the production of those results, understanding the differences rather than bluntly avoiding them, require us to address a number of preliminary questions:

- *What constitutes good science in different research contexts?*
- *What types of knowledge are created by research environments with different characteristics?*
- *Should there be global standards for best practice given such diversity, and what would they look like?*
- *Who are the epistemic agents adopting those standards and practising science according to them?*

We believe that an interesting experiment in research-site diversity, where some of these questions can be addressed and find some possible answers (also with some insightful additions), is the field of so-called citizen science.

Citizen science is a different approach to doing science, that works by inviting and including non-scientists in a range of activities for the production of scientific knowledge and its use in society – in different forms and levels of participation.

By 'non scientists' we mean non professional scientists – individual citizens, local communities, NGOs, groups of patients, etc.

And by 'different forms and levels of participation' we refer to a wide spectrum that goes from bare collection of data (where groups of volunteers are asked to observe and report on specific sets of phenomena) to more constructive types of collaborations and co-production of scientific results (where citizens learn about methods and techniques of research, or make suggestions towards the very formulation of the research questions).

Doing science this way is both inclusive and more widely participated. But it elicits a number of important open questions:

- *Who are the citizen scientists who take part in these research programmes?*
- *And what types of experts are most suitable to collaborate with citizens?*
- *What motivates both citizens and scientists to engage in science in a cooperative manner?*

- *Who sets the rule for doing science this way? And what rules apply?*
- *More generally, what does it take (scientifically but also socially, politically, ideologically) to do science this way?*

This set of questions arguably cuts across the set of preliminary questions concerning 'good science' as listed above, possibly with the addition of some further items of reflection:

How might the achievement of scientific results be enhanced by the participation (and inclusion) of categories of epistemic agents other than professional scientists?

How does participation make openness operationally more meaningful?

How to create spaces of deliberation where different 'voices' can be heard and put to (potentially) good use?

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