Cognition at the heart of sustainability

Guillaume Dezecache,
UMI Source, Université Paris-Saclay, UVSQ, IRD, France

Background

If the aim of sustainability science is to understand the dynamics of socioecological systems and to analyse their sustainability prospects, then a nuanced understanding of the psychology of the actors involved is utterly indispensable. In other words, we need to understand what motivates these actors, what encourages them and what holds them back. Much will depend on what they are capable of perceiving, learning and understanding. Far from being a proverbial *tabula rasa* ready to receive sensory experiences, our cognitive system has inherent limitations, constraints and blind spots. While the international sustainability science community has begun to engage with the "cognitive sciences", as of yet there has been relatively little discussion of these matters in the French-speaking world. In order to bridge this gap we must now train a new generation of students and researchers, in both the Global South and Global North, in the cognitive dimensions of sustainability. This is by no means a simple matter of academic positioning: for sustainability to exist we must be capable of conceiving and supporting it.

Contact
guillaume.dezecache@ird.fr

Further reading

Meyer R., Kunreuther H., 2017 – *The ostrich paradox: Why we underprepare for disasters.* University of Pennsylvania Press.

A few fundamentals of cognitive psychology

In simple etymological terms, psychology is the discourse *(logos)* of the mind *(psyche)*. In very broad terms, it is historically and methodologically distinct from philosophy in that it adopts an empirical approach (questions are asked of reality, and reality is expected to supply the answers) and adheres to the scientific method (we seek to establish systematic relations between facts, ultimately by testing hypotheses). In the 1950s, psychology as a discipline was reshaped by the "cognitive" revolution. This perspective hinges on the idea that our only means of accessing reality is through the medium of our cognitive system. Computing metaphors are often invoked to explain this position: the brain functions like a computer, and the mind is the operating system. Our brain-computer has limited storage and processing capacities; the mind-operating system is structured in a certain manner (it only responds to certain types of stimulus; it can only generate certain types of behaviour) and performs very specific functions and tasks by means of mental calculations, much like algorithms. Nevertheless, the brain is notable for its plasticity: it evolves over the course of its life (maturing, then ageing), and is capable of learning. The mind - the operating system - is thus shaped and formed by our social experiences. It is not, however, a *tabula rasa*, a passive, blank slate for sensory experience. The brain needs to "know" what to learn in order to learn anything. The cognitive turn in psychology has taught us much about our psychological and behavioural tendencies. Perhaps most notably, it has revealed out tendency to rely on "heuristics" (otherwise known as "biases"), particularly when performing routine tasks or when we are under pressure to make a decision. For example, we tend to want to confirm things that we already know or believe to be true, rather than seek out information which might contradict these assumptions. These heuristics exist for a reason: they allow us to manage our day-to-day lives. They may, however, be at odds with our sustainability objectives.

Cognition and risk

The story of Thai meteorologist Smith Dharmasaroja (Meyer & Kunreuther, 2017) offers a particularly striking illustration of the potentially harmful effect of heuristics on sustainable development decisions. In 1998, Smith lobbied the government to install early warning systems for tsunami detection, a step already taken by many other Pacific nations. The authorities refused, citing the prohibitive costs involved. In 2004, an earthquake generated tsunamis which swept across the Indian Ocean, wreaking havoc on the Thai coast and killing thousands. While the factors which influenced the government's decision were necessarily complex, it is possible that their reasoning was led astray by heuristics. One form of heuristics, well known to economists, is *hyperbolic discounting*, or the tendency to prioritise immediate rewards (e.g. avoiding the expense of installing an early warning system) over future benefits, even when the latter far outweigh the former in simple, objective terms (i.e. avoiding thousands of deaths and hundreds of millions of dollars' worth of damage). This form of cognitive "short-sightedness" is also evident in our attitude to insurance policies: the number of

people taking out insurance tends to increase after natural disasters, before rapidly dropping back to its previous level even though the risk remains high (Meyer & Kunreuther, 2017). This is closely connected to the psychological phenomenon known as "simplification," which causes people to believe that they are prepared for certain risks (a hurricane, for example), whereas in reality they have only scratched the surface of the recommended preparation measures.

The bad reputation of cognitive sciences

Perusing the reference files devoted to sustainability science on the IRD website (https://www.ird.fr/les-fiches-references-science-de-la-durabilite), it soon becomes clear that psychology and cognitive sciences are often excluded from the conversation. We should not take offence at this omission: our community (or at least the French-speaking chapter) has not really "put in the work" required to claim that seat at the table. In fact, researchers in the cognitive sciences are sometimes held in low regard by colleagues in the social sciences, a reputation which is not entirely unmerited. By acknowledging the fact that our brain is the product of a long process of evolution, and remaining open to research in the field of genetics which hints at connections between polygenic inheritance and cognitive tendencies, we risk giving the impression that our brain is "fixed" and "deterministic," and that its development is impervious to social and cultural influences. Nothing could be further from the truth. Individual behaviour is shaped by individual social experiences, and we are constantly being influenced by the norms and situations we encounter. Moreover, because we concern ourselves with analysing the brain - an organ safely lodged inside our skull and thus protected from the outside world - we often regard the individual as our default unit of analysis. But this "methodological individualism" can lead us to neglect, or overlook entirely, the social influences which are fundamental to the choices we make. When it comes to issuing recommendations, we generally prefer to do so in the form of "nudges," little individual incentives to prepare for future risks, or to recycle our tin cans so that global warming doesn't hit 3°C. In doing so, we distract attention from systemic problems - such as poor communication between systems of governance, or major inequalities in carbon footprints - and leave individuals to bear the burden of change which needs to happen at a much more systemic level. Last but not least, psychology as a field is overwhelmingly based upon research conducted in North America and Europe. It should thus come as little surprise that its conclusions prove to be of little use to anthropologists and sociologists working in and with the Global South. Psychology and the cognitive sciences are largely dependent upon a "positivist" epistemology, which leaves little room for local knowledge and alternative epistemologies.

Psychological and cognitive sciences for sustainability: the scientific, institutional and civic stakes

If, like me, you are convinced that psychological and cognitive sciences can be of great use in matters of sustainable development, then

we need to help these sciences to develop and flourish in the French-speaking academic community concerned with sustainability science. This will undoubtedly demand a certain amount of educational outreach on our part (see my comments above on the "bad reputation of cognitive sciences"), but the social sciences community must also be willing to hear us out. One initiative with which I have been involved personally is the organisation of occasional presentations by researchers in psychology and cognitive sciences, for the benefit of the various IRD Knowledge Communities. This requires a certain understanding of the stakes of sustainability science among the academic community in the fields of psychology and cognitive sciences. The creation of the "psysustainability" mailing list (psychology and cognitive sciences for sustainability, see: https://listes.ird.fr/sympa/info/psydurabilite) constitutes a first step in this direction. We also need to ensure that our knowledge, methods and research are disseminated and developed in the Global South. Initiatives (such as Busara, https://www.busara.global/about-us/) do exist, but they need to be institutionalised. Last but by no means least, we have a real civic duty to share our psychological and cognitive expertise with the general public. In France, initiatives such as "Acte Lab" (https://www.modernisation.gouv.fr/files/2022-04/) have been launched to bring together networks of experts committed to the ecological transition, and these efforts must now be secured for the long term by professionalising the connections between the scientific community and civil society.

KEY POINTS

The configuration of our cognitive system can have a decisive influence on the decisions we take on matters of sustainability. Studying cognition is always going to be useful, because whenever humans are required to take decisions for themselves and others, the risk is that they will fall victim to defective reasoning or psychological tendencies which are incompatible with our sustainability objectives. Nevertheless, studies of the human mind have long been largely restricted to scientific communities in the Global North, and this represents an obstacle to their dissemination and their pertinence for sustainability science.

SUSTAINABILITY SCIENCE

UNDERSTAND, CO-CONSTRUCT, TRANSFORM

Volume 3

Collective thinking coordinated
by Olivier Dangles, Marie-Lise Sabrié and Claire Fréour

IRD Éditions

French National Research Institute for Sustainable Development
Marseille, 2024

Editorial coordinator: Corinne Lavagne
Editorial preparation: Jasmine Portal-Cabanel
Cover, design and layout: Charlotte Devanz

Cover photo: Rock painting, Cueva de las Manos, Argentina.
© IRD/O. Dangles – F. Nowicki/*Une Autre Terre*

Photo p. 14: Preparing tubes for saliva samples, Gabon
© IRD/P. Becquart

Photo p. 40: Health centre in hot conditions, Senegal
© IRD/A. Makosi, Mopga project

Photo p. 70: Launching a drone on Changri-Nup, Everest, Nepal.
© IRD-CNRS/S. Vergoz, Preshine expedition

Photo p. 92: Participatory exercise on the theme of erosion, Indonesia
© IRD/Rights reserved

Photo p. 106: Fabrication of a terra cotta jar, craft village, Vietnam
© IRD/J.-M. Borée

Photo p. 128: Child's drawing, Madagascar
© IRD/S. M. Carrière

ISBN PDF: 978-2-7099-3041-3