



TENTATIVE D'ÉLABORATION D'UN CADRE CONCEPTUEL D'EXPLORATION DES SCIENCES PARTICIPATIVES



Raphaëlle Bats

2025, mise à jour 2026

BENJAMIN
ADAM

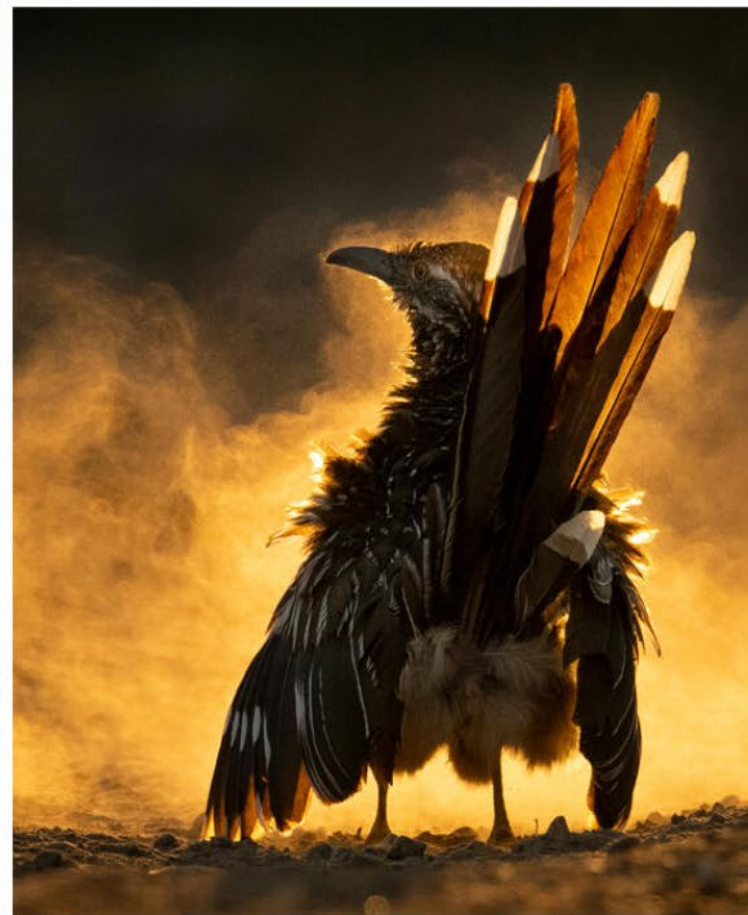
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TOME 1 LA GLACE



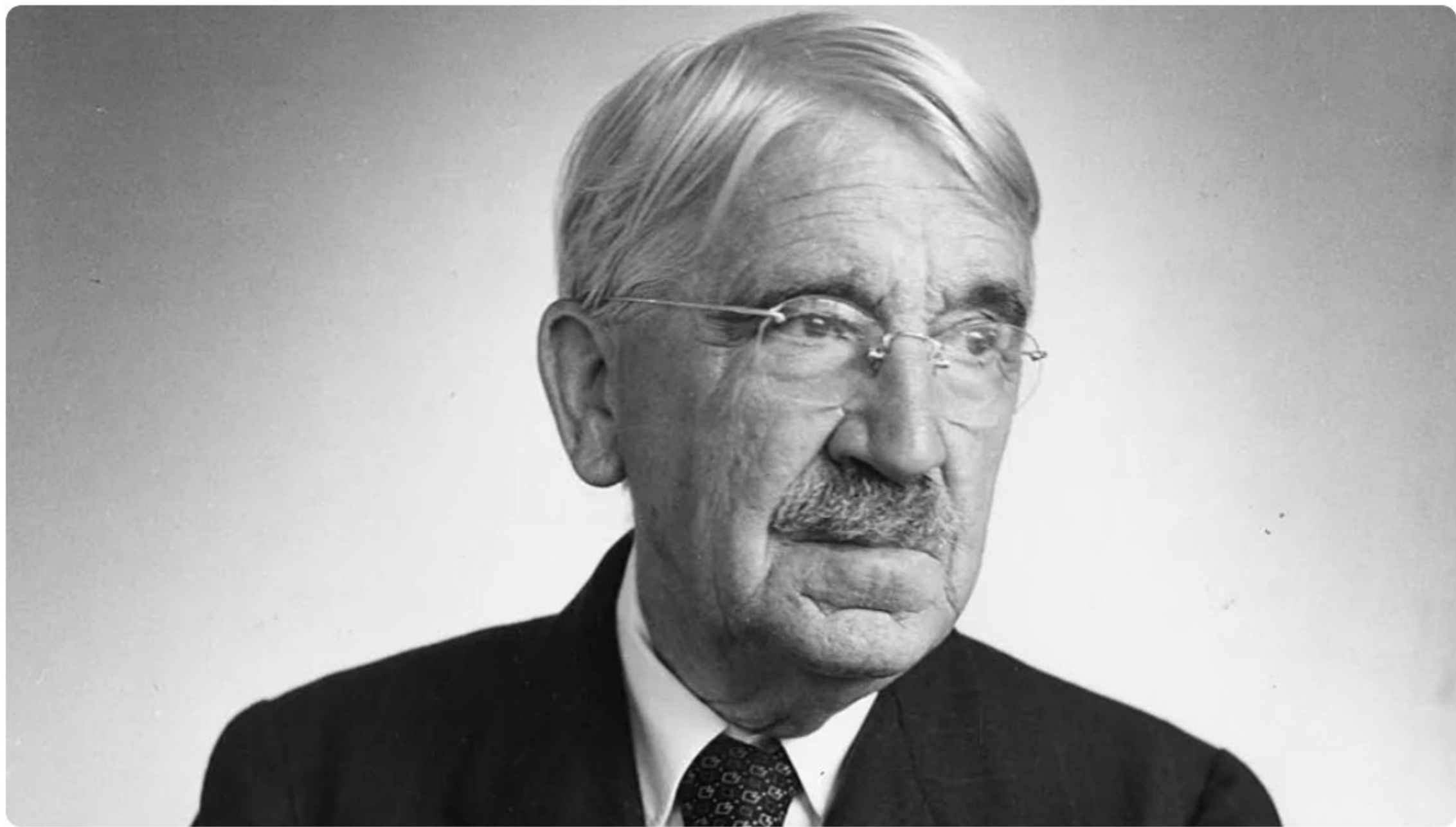
CHARI
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[Audubon Photography Awards](#)

The 2021 Audubon Photography Awards: Winners and Honorable Mentions

Thousands of people entered photographs and—for the first time— videos

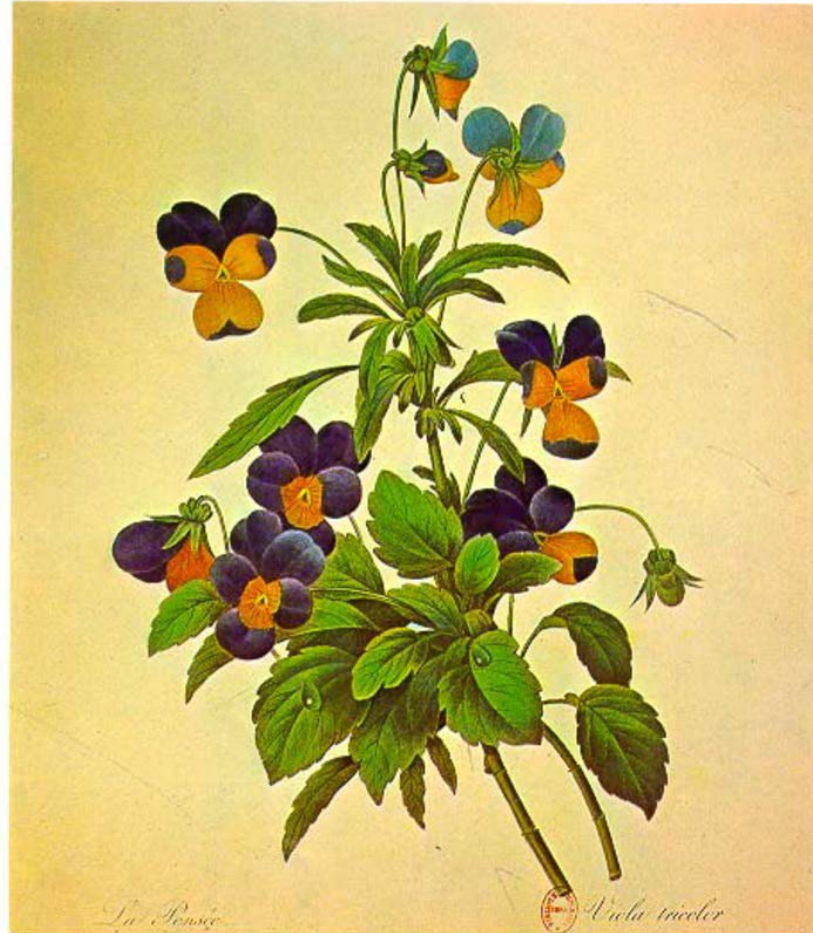


Portrait of John Dewey, 87 years old, 1944. © Getty Images / U.S. Sheridan Library

CLAUDE LÉVI-STRAUSS

de l'Académie française

LA PENSÉE SAUVAGE



- Pensée critique / culture scientifique ?



Rapport Houllier, 2016

Le nombre de projets de sciences participatives français augmente. Parmi les 500 témoignages d'acteurs français que nous avons recueillis dans le cadre de notre consultation en ligne, 85 ont précisé la période du dispositif auquel ils ont pris part : 38% des projets ont débuté après 2013, le plus ancien datant de 1972. Ils durent entre 6 mois et 10 ans, avec une moyenne de 1 à 2 ans.

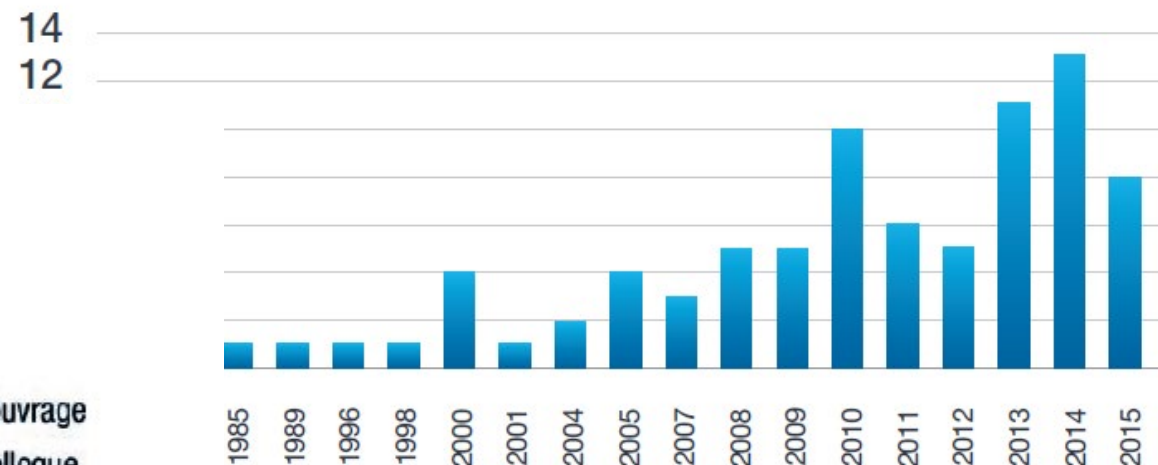
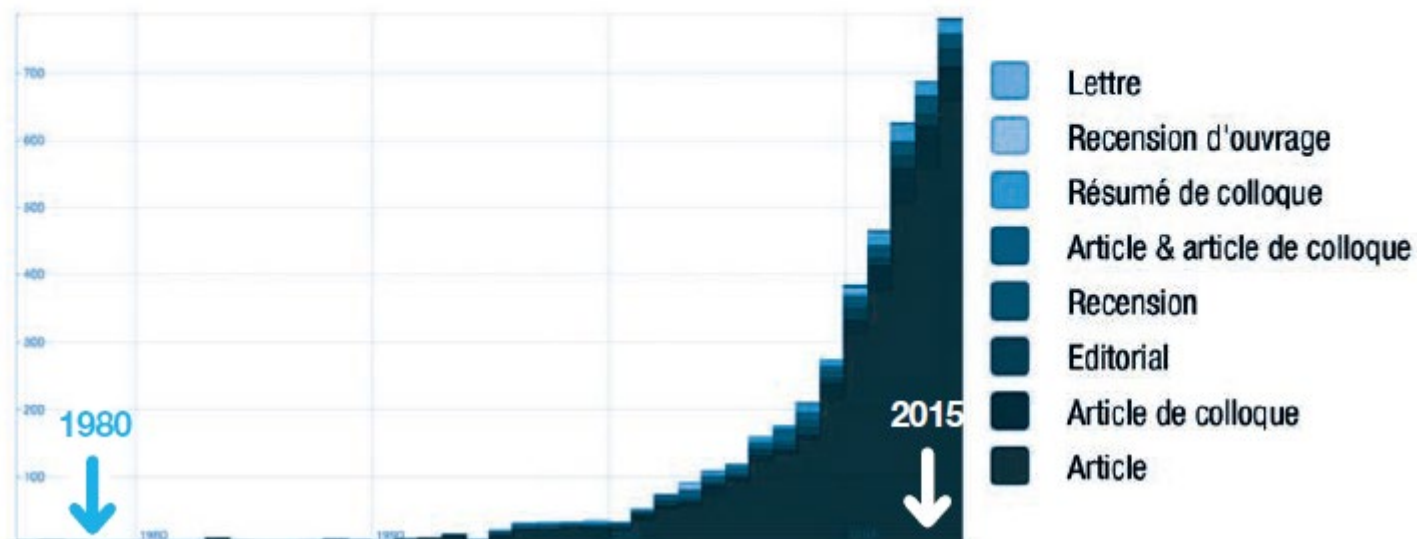
Répartition dans le temps des projets signalés dans l'enquête

On peut imaginer un biais dans cette donnée du fait que les individus qui mènent actuellement ou ont mené récemment des recherches participatives étaient plus enclins à répondre à notre enquête. Les anciens projets français sont certainement sous-représentés.

Source : Consultation en ligne, annexe 8 (85 réponses à cette question)

Évolution du nombre de publications en sciences participatives dans le monde

Source : Analyse scientométrique, annexe 3



Enquête menée en
2025, publiée en
2026

source :

<https://www.scivil.be/en/citizen-science-scan>

Key findings

Number of projects

- In 2025, there were 242 active citizen science projects in Belgium, a strong increase compared to 2023 (n=150). This increase reflects both improved search strategies and a genuine rise in new projects supported by regional and European funding.
- 2024 stood out as a remarkable peak year for newly launched citizen science projects.
- Half of the surveyed projects have a duration of two to five years.



Citizen science in schools

- 38% of citizen science projects collaborate with schools.
- Students primarily collect data but are increasingly involved in other activities such as co-designing the protocol, analysing data, disseminating results and formulating recommendations.



Topics

- 40% of the projects conduct research on biodiversity and biology. Other projects focus on climate and environment (19%), human behaviour and well-being (18%), archaeology, history and heritage (17%), and exact and technical sciences (6%).
- The most notable increase is in projects related to healthcare and health sciences, driven by regional and European incentives.



Language

- In most projects (83%), citizens can participate in Dutch. This is substantially more than in English (47%), French (38%) or German (12%).
- The number of multilingual projects has increased compared to 2023. Half of the projects now offer more than one language.



Activities

- Compared to 2023, citizens are more frequently involved in different research phases of the project, particularly in projects focusing on human behaviour and well-being, and climate and environment.



Participants

- Citizen science projects in archaeology, history and heritage typically work with smaller teams (up to 100 people). In other topics, project sizes vary, ranging from less than 20 to more than 20,000 participants.
- The majority of projects have a regional scope (taking place in one of the regions or communities in Belgium).



Participation

- Participatory Science
- Participatory Research
- Community Action Research
- Community Based Participatory Research
-

Community

- Community Science
- Community Based Participatory Research
-

Co-....

- Collaborative Science
- Cocreated Science
- Cooperative Science
- ...

Citoyen

- Citizen Science
- Civic Science

Monitoring

- Monitoring Science
- Monitoring Count

Crowd

- Crowd Science
- Crowdsourced Science

Méthode
Collectif

The diagram consists of a 2x2 grid of squares. The top-left and bottom-left squares are teal, while the top-right and bottom-right squares are yellow. A thin blue vertical line separates the teal squares from the yellow squares, and a thin yellow horizontal line separates the top row from the bottom row. The text 'Méthode Collectif' is centered in the top-left teal square, 'Méthode Organisation' is centered in the bottom-left teal square, 'Effets Transformations' is centered in the top-right yellow square, and 'Effets Savoirs' is centered in the bottom-right yellow square.

Effets
Transformations

Méthode
Organisation

Effets
Savoirs

Méthode
Collectif

Effets
Transformations

Méthode
Organisation

Effets
Savoirs

Typologie des projets de science participative

Wiggins, A., & Crowston, K. (2011). From Conservation to Crowdsourcing: A Typology of Citizen Science. 2011 44th Hawaii International Conference on System Sciences, 1-10. <https://doi.org/10.1109/HICSS.2011.207>

Action-oriented citizen science projects

encourage participant intervention in local concerns, using scientific research as a tool to support civic agendas.

Conservation projects support stewardship and natural resource management goals, primarily in the area of ecology; they engage citizens as a matter of practicality and outreach.

Investigation projects are focused on scientific research goals requiring data collection from the physical environment; these projects best fit the definition of citizen science

In the **science-oriented Virtual projects**, all project activities are ICT-mediated with no physical elements.

The Education projects in this typology make education and outreach primary goals, all of which include relevant aspects of place.»



■ Tree Body Guards

Table 4.1 Engagement and skills in citizen science projects

	High engagement	Low engagement
High level of knowledge	• Highly valuable effort: research assistants • Significant time investment • Opportunities for deeper engagement (analyses, writing papers)	• Skills might contribute to data quality • Possible use of disciplinary jargon • Opportunities for lighter or deeper engagement to match time/effort constraints
Low level of knowledge	• Opportunities for education, awareness raising, other skills • Support and facilitation are necessary	• Opportunities for active engagement with science with limited effort • Potential for family/ cross-generational engagement • Outreach to marginalised groups • Potential for large temporal and spatial coverage and contribution to science

Haklay, M. (2018). Participatory citizen science. In M. Haklay, S. Hecker, A. Bowser, Z. Makuch, J. Vogel, & A. Bonn (Éds.), *Citizen Science* (p. 52-62). UCL Press.

<https://www.jstor.org/stable/j.ctv550cf2.11>

Méthode
Collectif

Effets
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Engagement

Wiggins, A., & Crowston, K. (2011).
 From Conservation to Crowdsourcing: A
 Typology of Citizen Science. 2011 44th
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 System Sciences, 1-10.
<https://doi.org/10.1109/HICSS.2011.207>

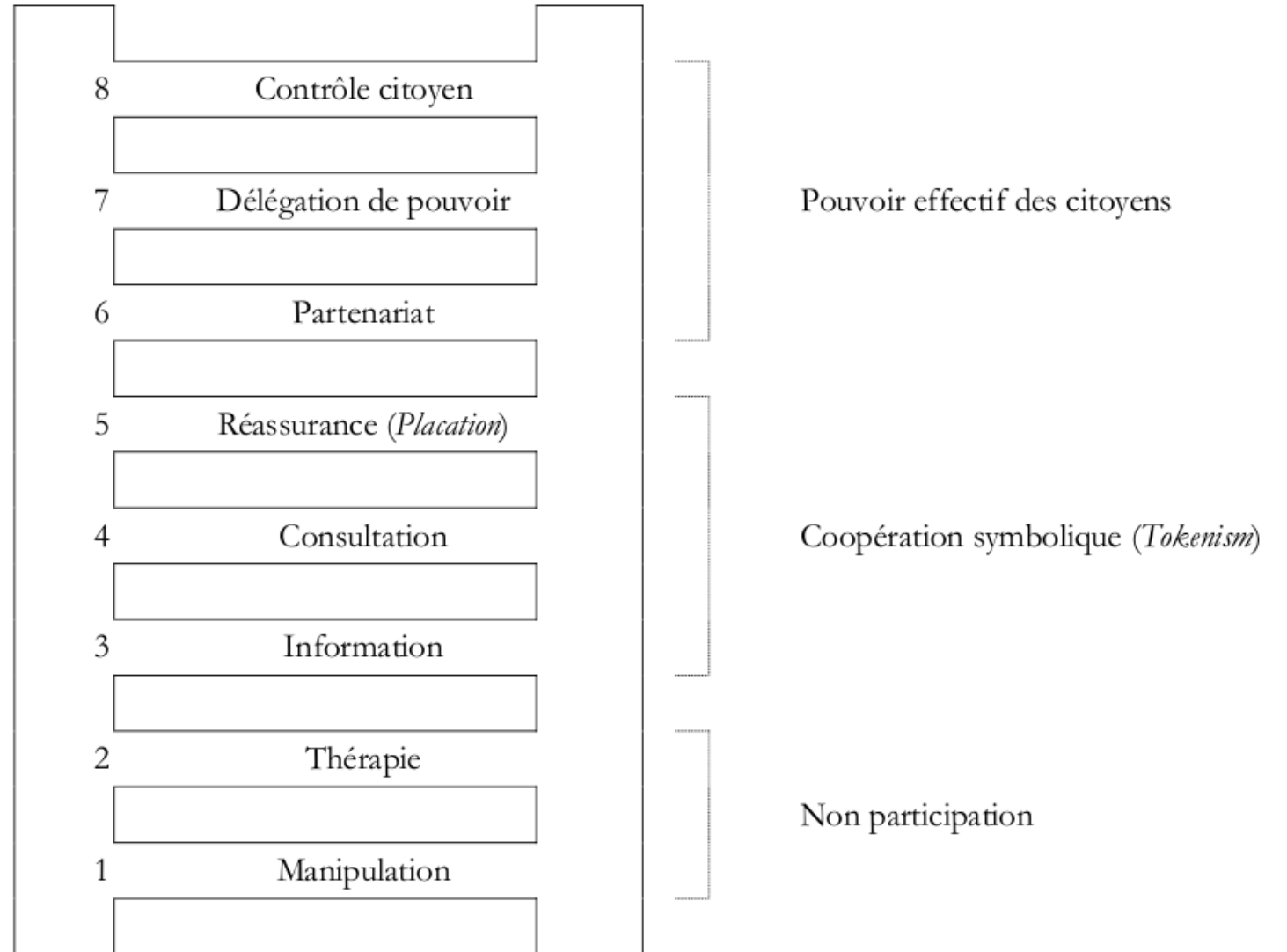
Stage of Inquiry	Cooper et al.	Wilderman	Bonney et al.	Contributory	Collaborative	Co-created
Define question	✓	✓	✓			X
Gather information			✓			X
Develop hypotheses			✓			X
Design study	✓	✓	✓		(X)	X
Data collection	✓	✓	✓	X	X	X
Analyze samples		✓	✓		X	X
Analyze data	✓		✓	(X)	X	X
Interpret data	✓	✓	✓		(X)	X
Draw conclusions	✓		✓		(X)	X
Disseminate results			✓	(X)	(X)	X
Discuss results & ask new questions			✓			X

TABLE I

VOLUNTEER INVOLVEMENT IN ENVIRONMENTAL SCIENCE TYPOLOGIES, WITH DEFINITIONS OF PARTICIPATORY SCIENCE MODELS. ✓ = INCLUDED IN MODEL; X = PUBLIC INCLUDED; (X) = PUBLIC SOMETIMES INCLUDED.

Echelle de la participation des publics

Arnstein, S. R. (1969). A Ladder of Citizen Participation. *Journal of the American Institute of Planners*, 35(4).



Echelle de la participation des publics dans les projets de CS

(Note) Extreme science
= science collaborative
= community science

Source : Severo Marta, « Sciences et recherches participatives » *Publicationnaire. Dictionnaire encyclopédique et critique des publics*. Mis en ligne le 05 mars 2021. Dernière modification le 02 juin 2021. Accès : <http://publicationnaire.humanum.fr/notice/sciences-et-recherches-participatives>

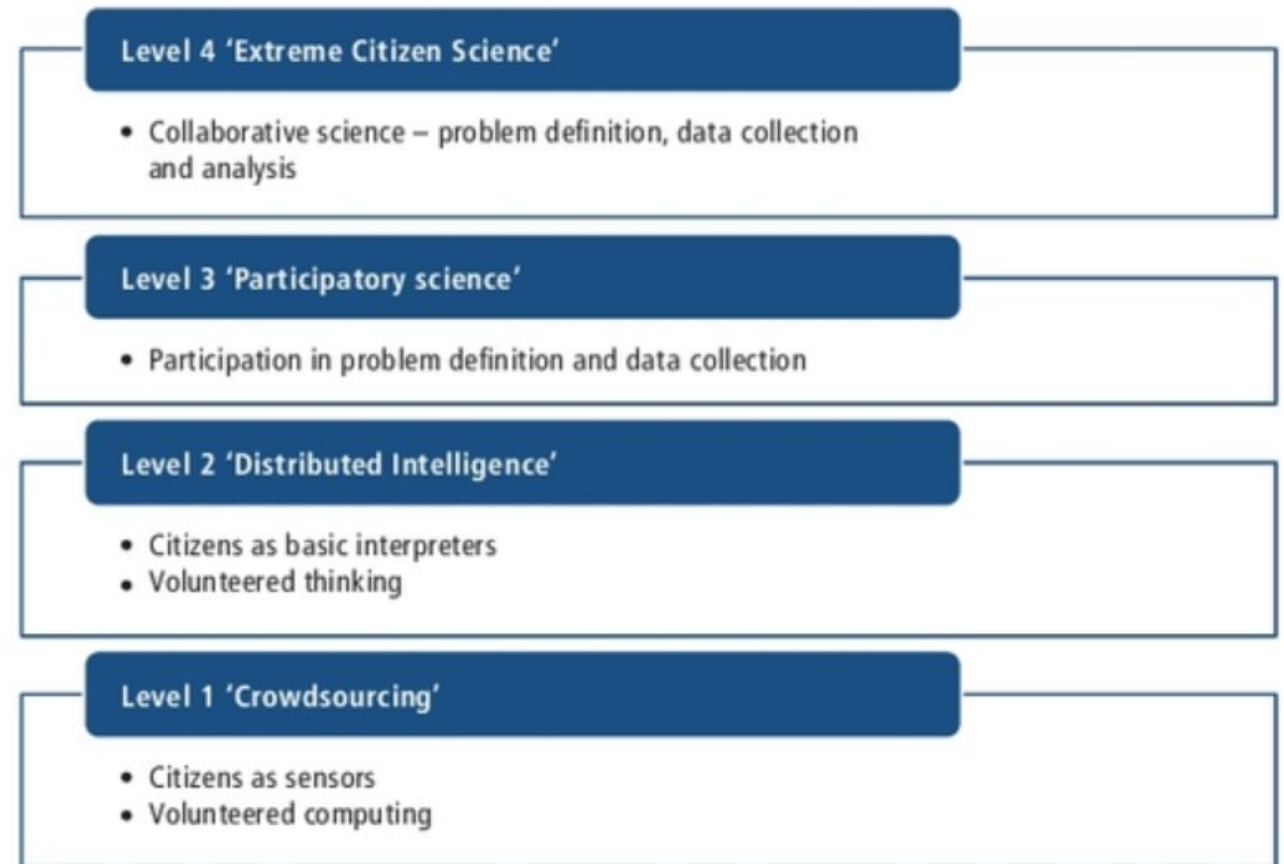
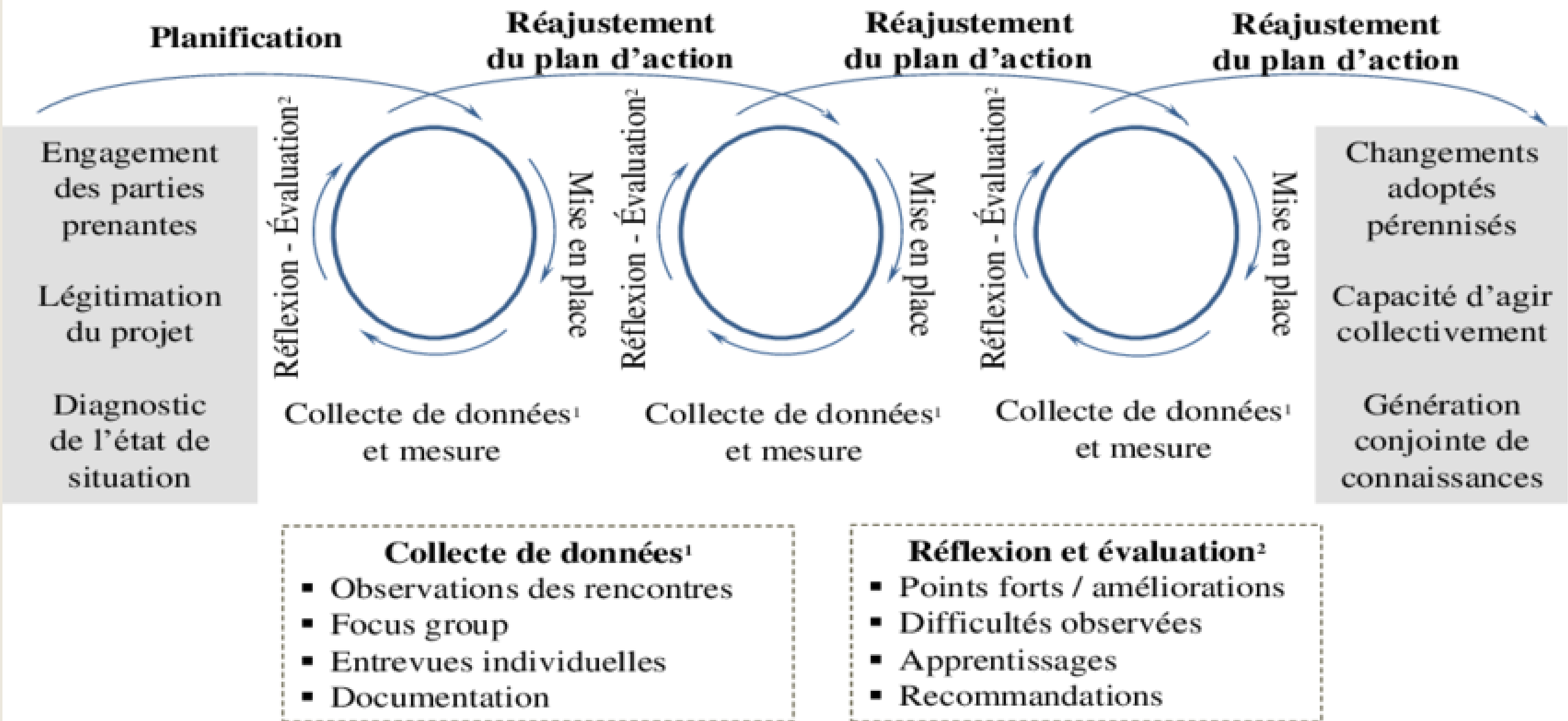
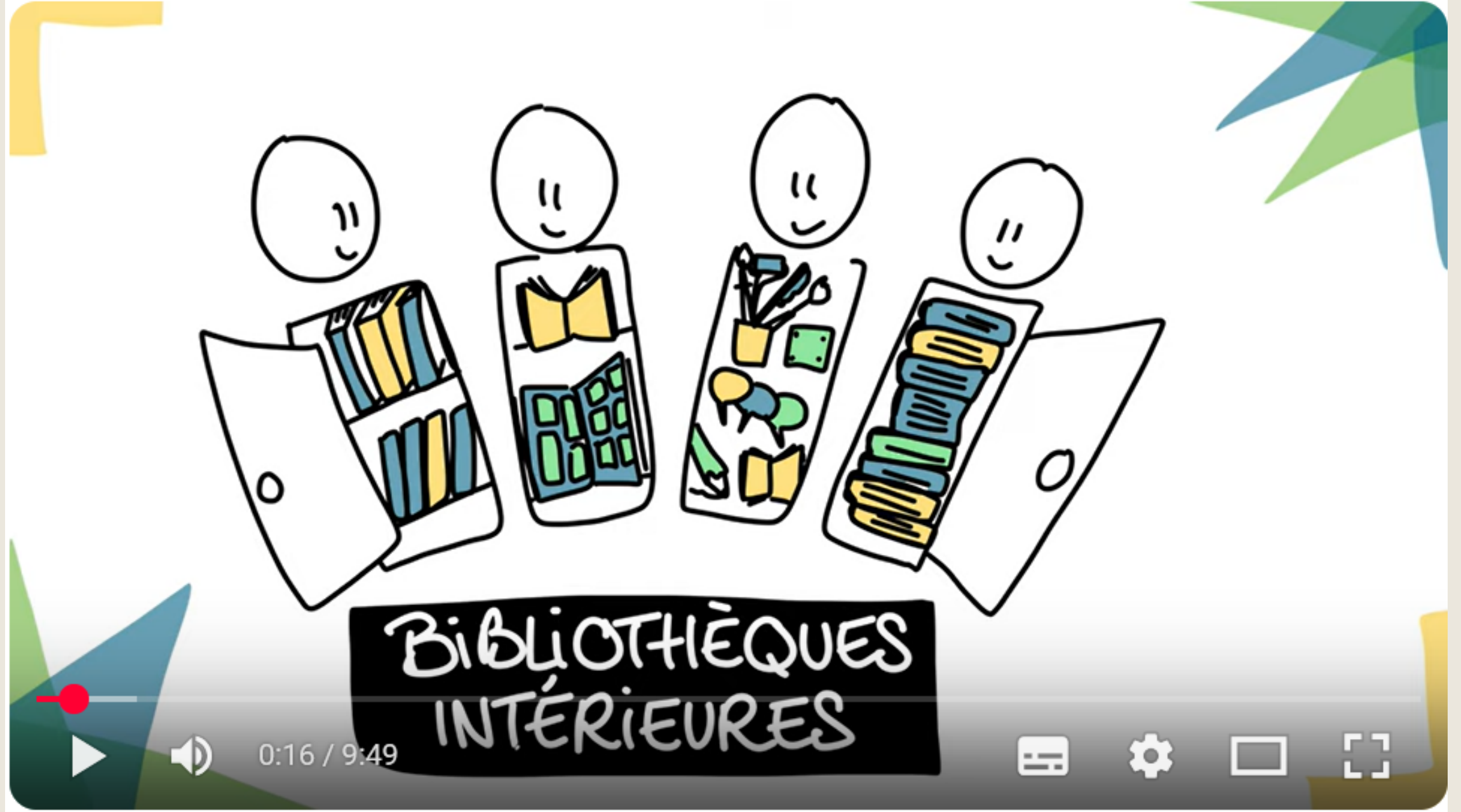


Fig. 4.1 Levels of participation in citizen science (Haklay 2013)

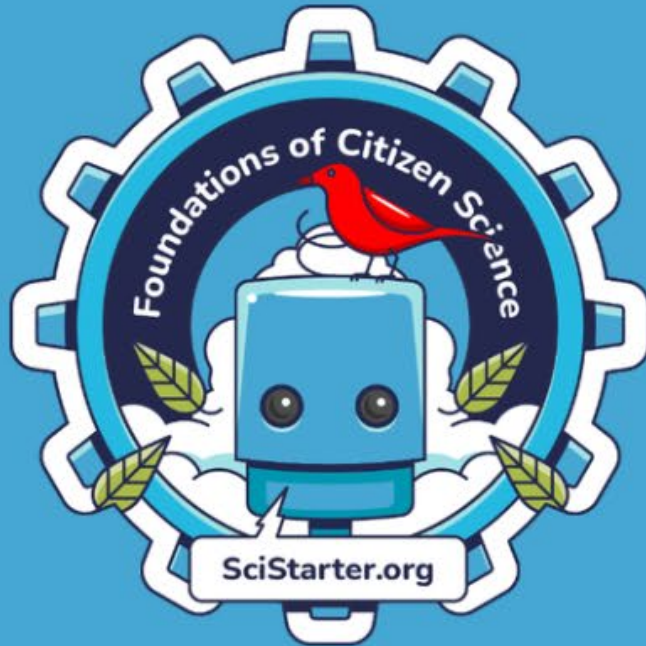
Tableau dans Haklay, M. (2018). Participatory citizen science. In M. Haklay, S. Hecker, A. Bowser, Z. Makuch, J. Vogel, & A. Bonn (Éds.), *Citizen Science* (p. 52-62). UCL Press.
<https://www.jstor.org/stable/j.ctv550cf2.11>





Raphaëlle Bats, Estelle Crochu, 2024 : <https://www.youtube.com/watch?v=uSOKjfoKulM>

Start with the Foundations of Citizen Science training module then select any follow-on training.



FOUNDATIONS OF CITIZEN SCIENCE

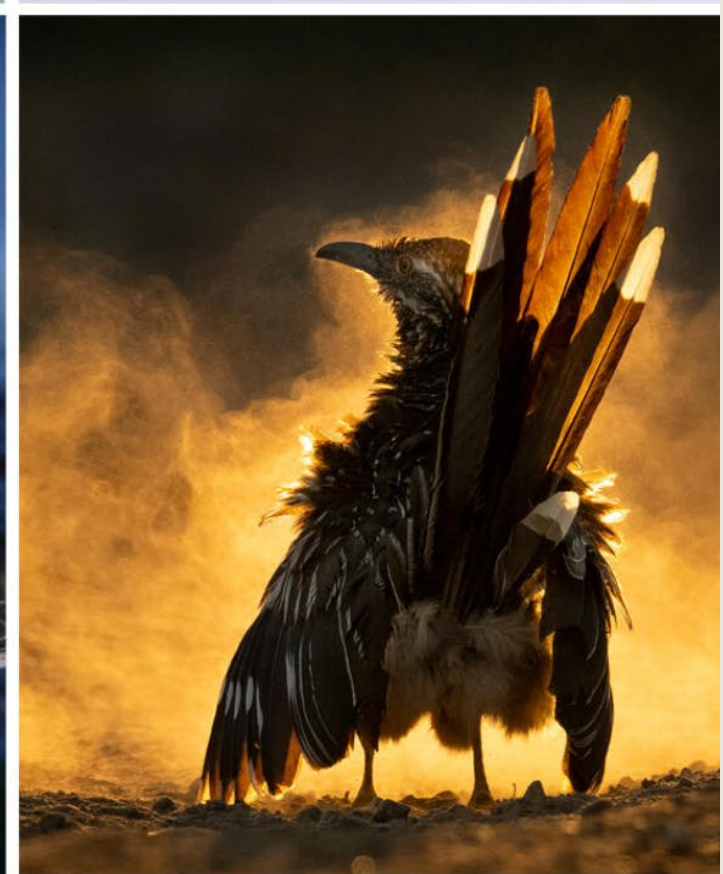
Just scroll down for Foundations of
Citizen Science!



BUILDING DATA LITERACY THROUGH COMMUNITY AND CITIZEN SCIENCE



LIBRARIES AS COMMUNITY HUBS FOR CITIZEN SCIENCE



Audubon Photography Awards

The 2021 Audubon Photography Awards: Winners and Honorable Mentions

Thousands of people entered photographs and—for the first time— videos

<https://www.audubon.org/magazine/summer-2021/the-2021-audubon-photography-awards-winners-and>

Méthode
Collectif

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PARTICIPATORY RESEARCH:

a feminist approach

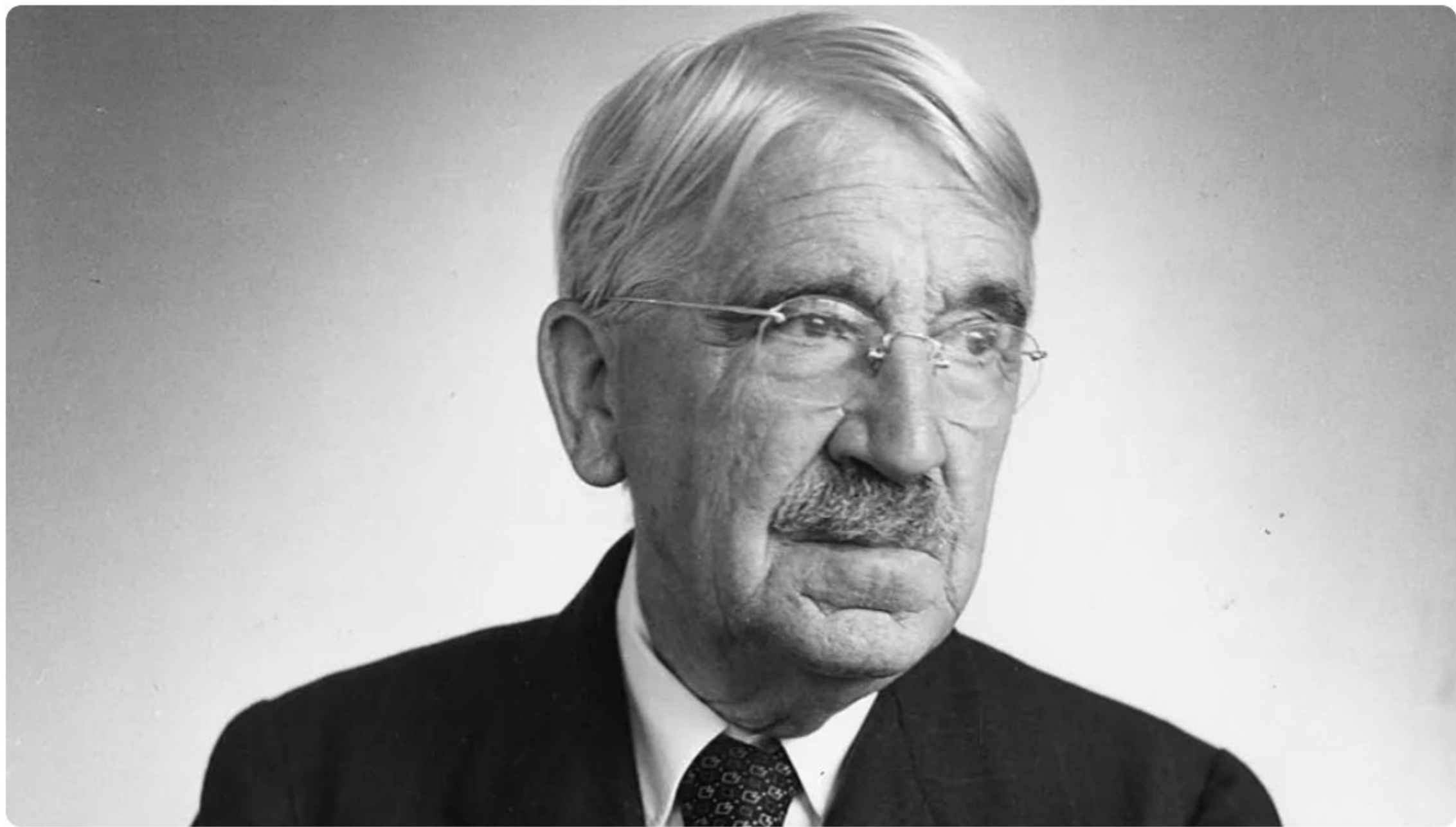


Patricia Maguire

“Science communication may be defined as the use of appropriate skills, media, activities, and dialogue to produce one or more of the following personal responses to science (the vowel analogy):

- **Awareness**, including familiarity with new aspects of Science;
- **Enjoyment** or other affective responses, e.g. appreciating Science as entertainment or art;
- **Interest**, as evidenced by voluntary involvement with Science or its communication;
- **Opinions**, the forming, reforming, or confirming of Science-related attitudes;
- **Understanding** of Science, its content, processes, and social factors.”

The vowel analogy to define science communication (Adapted from Burns et al., 2003)



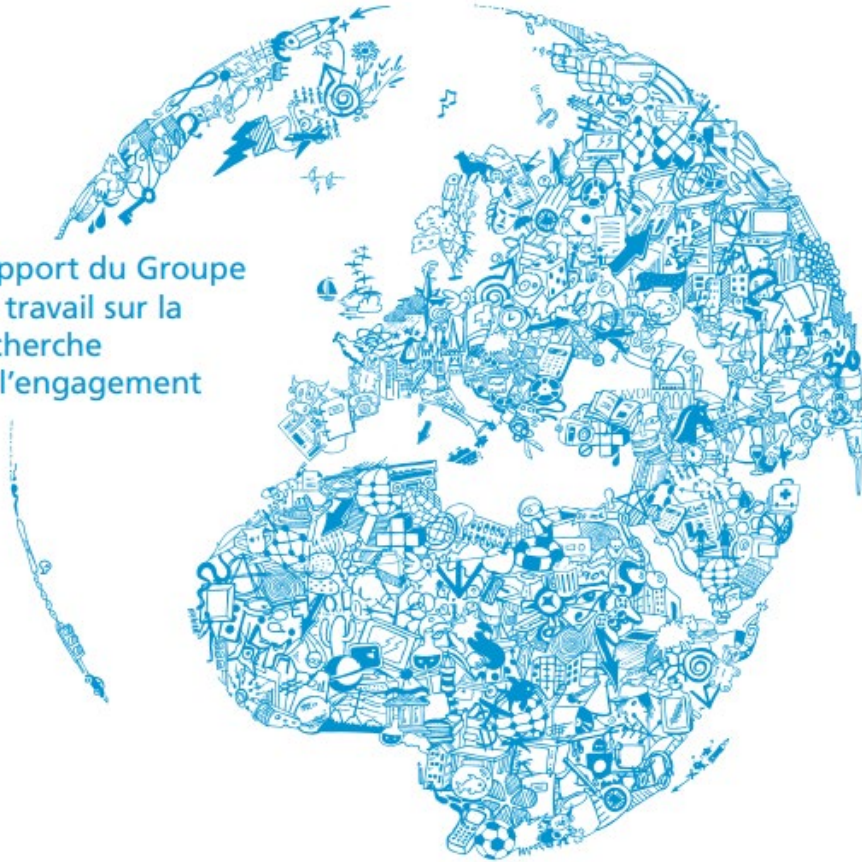
Portrait of John Dewey, 87 years old, 1914. © Getty Images / U.S. Sheridan Library

NEWS ARTICLE | 20 June 2025 | Directorate-General for Research and Innovation | 4 min read

The 2025 EU Prize for Citizen Science goes to three projects that are advancing disaster preparedness, reducing food waste and empowering Roma women's emancipation

L'ENGAGEMENT PUBLIC DES UNIVERSITAIRES: ENTRE LIBERTÉ ACADÉMIQUE ET DÉONTOLOGIE PROFESSIONNELLE

Rapport du Groupe
de travail sur la
recherche
et l'engagement



Centre de compétences en durabilité
Centre interdisciplinaire de recherche en éthique
Université de Lausanne, Mai 2022

Guide du CNRS



Méthode
Collectif

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Savoirs

Les sciences et recherches participatives sont des formes de production de connaissances scientifiques dans lesquelles les acteurs de la société civile participant activement et délibérément, de manière individuelle ou collective.

“ Les chenilles me disent
Qu'elles connaissent leur arbre
Bien mieux que les scientifiques.
Ce sont elles qui devraient écrire.

Julie Dirwimmer
Madame Cosinus

”



Projet de recherche ECODOC
URFIST de Bordeaux
Université de Bordeaux

De l'arbre à la feuille

De l'arbre à la feuille

Recueil de science slamée

Composé par
Raphaëlle Bats
Mathilde Garnier

ECODOC

ECODOC

Autorat collectif et enjeux

- Sarna-Wojcicki, D., Perret, M., Eitzel, M. V., Fortmann, L., & Bruno, I. (2018). Où sont passé-es les coauteurs-trices ? *Revue d'anthropologie des connaissances*, 122(2), 323-360.

Effets positifs

- *L'autorat comme propriété.*
- *L'autorat comme signe de responsabilité et d'autorité.*
- *L'autorat comme justice épistémique*

Freins

- *Nombre d'auteurs*
- *Normes disciplinaires et éditoriales.*
 - Validation du texte proposé : en anglais, avec adresse email, etc.
 - Responsabilité scientifique

Risques (pour les chercheurs)

- « un soutien faussement assumé aux résultats de recherche,
- l'émergence de désaccords au sein de la communauté
- une perte de temps pour parvenir à un consensus,
- une perte de liberté académique,
- une moindre probabilité de publication,
- des difficultés à fixer les critères de reconnaissance de la qualité d'auteur,
- des problèmes pour distinguer l'autorat communautaire et celui individuel,
- un prestige d'auteur dégradé,
- et des possibilités réduites d'accéder à un poste ou une promotion universitaire ».

Ce qui retient les participants d'être auteurs : "ne pas vouloir donner l'impression de soutenir une communauté de savants, ne pas vouloir que son savoir soit détourné ou marchandisé, ou ne pas vouloir que certains types de savoir soient mis noir sur blanc et rendus disponibles au public." (Sarna et al. 2018, paragraphe 39)



BREAKING BOUNDARIES: ADVOCACY FOR CITIZEN SCIENCE IN EUROPEAN HIGHER EDUCATION LIBRARIES

Authors: Raphaëlle Bats¹, Dolores Mumelaš², Sebastian Harnacker³, Alyx Taounza-Jeminet⁴
1. University of Bordeaux, 2. National and University Library in Zagreb, 3. TU Wien, 4. Humathèque Condorcet Paris



The libraries and the increase of Citizen Science Projects

The increase of citizen science (CS) projects in European universities reflects a growing trend towards integrating public participation in scientific research, enhancing both educational and research outcomes. European universities play a pivotal role in fostering collaborative knowledge creation and community engagement in higher education.

In this movement to change relations between science and society, higher education libraries serve as crucial hubs for collections, resources, and support, facilitating access to data literature. Their collections can serve as corpora for participatory projects. And they even play a key role in reaching out participants, and in training and guiding them.

Libraries are certainly essential partners in the integrity and success of citizen science projects. But is it obvious to everyone?

IT'S TIME FOR ADVOCACY

Considering that libraries need to gain recognition for the specific nature of their profession in implementing, supporting or disseminating participatory science, this poster aims to be an easy-to-grasp tool for arguing with university presidents and faculties, or other partners.



The arguments you need!
To convince the projects leaders, university managers or future partners, of the importance of libraries in citizen science projects, you need to have strong points to advocate. Here are 5 key arguments with illustrative examples!



1st Argument CITIZEN SCIENCE AND OPEN SCIENCE

Citizen science is part of open science, as it facilitates the production and circulation of scientific information to the general public.
Libraries, because they play a facilitating role in the implementation of open science policies, can also facilitate the implementation of resources in their universities to develop such projects.

They did it!
The Library of Edinburgh University has hired a CS officer to facilitate the development of CS projects.
The Library of Vrije Universiteit, Amsterdam has obtained funds to open a citizen science hub to promote CS in its university.
The Library of the University of Tamsu prepared training materials, as an OA toolkit on CS for librarians, to strengthen their position as a support unit.

2nd Argument CITIZEN SCIENCE AND DISSEMINATION OF KNOWLEDGE

Citizen science projects produce both academic (articles, data, etc.) and non-academic (comics, radio programs, blogs, etc.) knowledge.
As specialists in the dissemination of knowledge, libraries have a role to play in making this knowledge, produced in collaboration with citizens, accessible. Not only do they disseminate scientific knowledge, they also make the role of citizens in these projects visible.

They did it!
The Library of the University of Bordeaux offers a selection of documents to support the CS project Solobol. The selection includes academic papers, datasets, but also technical and legal documentation, and non-academic resources.
The Réseau UMRIST organized a study day on the transformation of scientific communication in citizen science and its impact on libraries and the dissemination of knowledge.

3rd Argument CITIZEN SCIENCE AND INTEGRITY OF SCIENCE

Together with citizens, citizen science projects produce data which, to be usable and reusable, must be collected and managed with a high level of integrity.
Because they support researchers in their digital research practices and in disseminating their work, libraries have a role to play in training project leaders in data management issues: data management plans, metadata, data repositories, and so on.

They did it!
The Pablo de Olavide University, in Seville, launched the Research Data Management Service to help project leaders.
The University of Helsinki proposes a Data Support for open science and online resources.
The University of Montpellier organized a seminar on the topic of data collection and citizen science projects.

4th Argument CITIZEN SCIENCE AND VALORIZATION

Citizen science enhances the valorization of scientific efforts within communities by involving the public in research processes and fostering a sense of ownership over scientific achievements.
Libraries are venues where citizen science projects are given value and recognition, fostering a collaborative environment for scientific engagement.

They did it!
The CTK (Central Technical) Library at the University of Lubiana offers a platform to promote projects, news and events related. They encourage the project managers to disseminate results through their library services.
The Citizen Science Knowledge Center of South-Caroliana University provides services to researchers to develop their CS projects and serves as community managers to promote events and reach out participants.

5th Argument CITIZEN SCIENCE AND LIBRARY'S COLLECTIONS

From the perspective of citizen science, Quality Science Libraries, Archives, and Museum Institutions can harness their resources to support and promote public participation in scientific research.
Libraries are supplying and curating collections that serve as foundational resources for conducting citizen science projects.

They did it!
The University of Edinburgh's Library adds its Heritage Collections for engagement and research in citizen science projects.
Kthl (University of Applied Sciences Library) initiated the project 'Revitalization of Cultural Heritage at Kthl' at the University of Applied Sciences in collaboration with their Alumni Association, Kthlans, and the general public.

Do you have additional examples based on your own experience? Add them here!



Thank you!
Thanks to the colleagues who agreed to answer our questions about their practices in the context of CS projects.

Raphaëlle Bats
Nai Coleman
Marina Vladoj Krušić
Mark Stas Kuemle

Thomas Harnacker
Ti Maitan
David Odenhof-Sol
Sara Kaseong



LSQR Open Science Working Group: This poster is an initiative within the LSQR Open Science Working Groups Strategic Decision 2, selected pioneering advocacy for the integration of Open Science. Learn more about the working group here:



Bats, R. C., Mumelaš, D., Harnacker, S., & Taounza-Jeminet, A. (2024). Breaking Boundaries: Advocacy for Citizen Science in European Higher Education Libraries. LIBER 2024, Limassol, 3-5 July. Zenodo.

<https://doi.org/10.5281/zenodo.12699907>

MERCI !

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