



Inclusive
Science and
European
Democracies

Policy Brief Series

Promoting Deliberative Participation in Europe

ENHANCING UNDERSTANDING OF SCIENCE THROUGH SCIENCE CLUBS

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Democracies

Innovation Targets

Taking **Citizen Science** initiatives, in all their diversity, as a **Methodological Toolbox** to improve participation and deliberation in Democracy.

Taking the **role of science-based knowledge** in public policy and democratic decision-making – central to knowledge societies – to improve **Participatory and Deliberative Processes** and to complement **Representative Democracy**.



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Enhancing Understanding of Science Through Science Clubs

Low trust in science and scientists, coupled with a limited understanding of science, poses a significant threat to democratic processes, and serves as a breeding ground for populism. The remedy to this negative phenomenon is the formation of educational hubs dedicated to fostering a scientific culture that spans generations and works for the benefit of local communities. These hubs would allow participants to engage in scientific projects, applying research methodologies such as questionnaires and experiments to address the challenges they encounter.

One form of such hubs is the Science Clubs. Currently implemented in Uruguay as a non-formal educational initiative, the Science Clubs provide a platform for children, youth, and teachers to collaborate through research. This not only promotes long-term engagement in science but also enhances democratic processes by facilitating science literacy and fostering the skills to express questions, discuss, and deliberate together.

OUR POLICY RECOMMENDATIONS

1. Establish infrastructure, such as schools, libraries, culture centers, to facilitate the operation of Science Clubs on a local level.
2. Promote a scientific approach to address local challenges within all age groups.
3. Strengthen self-driven interest of participants and their inner motivation by involving them in creating and applying solutions.
4. Engage adult members of the local community, for example NGOs, universities, counselors, or politicians, by introducing them to actions that concern them directly.
5. Open formal channels of communication between decision-makers and members of Science Clubs to ensure proper cooperation.



Science Clubs in Uruguay. MEC Uruguay.

RESEARCH OVERVIEW

In ISEED project, we examined the idea of Science Clubs (*Clubes de Ciencia*) as implemented in Uruguay to see if it could become a useful solution for facilitating future democratic processes in other countries. The study was conducted by researchers in Uruguay and the results were analyzed by the University of Warsaw in 2022 and 2023.

METHODS

Two groups of participants took part in the research, each with their own specific questionnaire. Group one consisted of *orientadores* (teachers/tutors leading the science projects) (N = 349). Group two consisted of adult citizens who in their youth took part in science projects as participants (N = 296), and a control group (N = 600) that didn't take part in the science projects. Additionally, interviews with 24 tutors and 24 participants of Science Clubs were conducted.

RESULTS

The analysis of research on Science Clubs in Uruguay shows several key findings. Tutors perceived the Clubs as working well (however not without problems) and providing important skills for participants. They were satisfied with their role and influenced mostly by internal motivation.

Participation in Science Clubs seemed to enhance the school experience – former participants of Science Clubs rated their primary and secondary education better than the control group. Participants believed that this experience influenced their lives by enabling them to

gain new skills. They believed that Science Clubs had a positive influence on their school community and local communities and enabled them to collaborate with others.

Club participation also seemed to influence the perceived level of the importance of science, the attitude toward implementation of science in political decision making and the ability to perform in a situation of uncertainty.

DISCUSSION

There is great potential in Science Clubs, but we can also point out some important challenges. The introduction of Clubs is time-consuming and relies strongly on the voluntary work of teachers and tutors.

The definite advantage of the idea is its simplicity – to register a Science Club one only has to find one tutor and one student, there is no need to find a fixed location, and the tutor doesn't have to be trained in any particular way (although basic knowledge of scientific method is a must). However, it is imperative that the participation in the program has some perks for both tutors and students to ensure their satisfaction and long-term involvement.

In the case of Uruguay, it was an opportunity to take part in regional and national science fairs. We also found out that an important element to increase engagement and commitment to clubs is collaboration with external stakeholders, such as members of local communities, experts, or other tutors.

RELEVANCE TO POLICY-MAKING

Science clubs provide a great arena where diverse groups of stakeholders, such as students, teachers, members of the local community, policy decision makers, citizens, can interact.

This type of initiative is beneficial to communities, offering both integration activities for citizens and some solutions to local problems. It also enhances democratic processes in two ways: firstly, it empowers young people and allows them to grow up with a stronger feeling of agency and curiosity about science, and secondly, through the presentation of Science Clubs' activities in forums such as fairs, or exhibitions, it allows local decision-makers and the general public to gain knowledge of local processes and problems that they would otherwise be unaware of.

We find this initiative worth being implemented on European ground. While creating a nationwide program might be costly and challenging, it is also feasible to implement the idea locally. However, it is essential to recognize the pivotal role of teachers and tutors in this process. We also recommend that the following groups consider this idea in their long-term plan for building scientific literacy in European society:

- The Ministry of Education.
- Local authorities.
- Principals of primary and secondary schools.

ISEED maps and explores how inclusive science can support European democracies.

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