

# Let's Talk Science – But How? Considering the Communicational Challenges of Citizen Science

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Participants with diverse professional backgrounds and experiences with Citizen Science (CS) projects discussed in a workshop the challenges in communication they perceive between professional and citizen scientists. Discussants identified four topics they considered particularly important: communication on eye level, communication of data quality, generating synergies between projects, and creating and sustaining participation motivation.

## INTRODUCTION

Effective and engaging communication between laypeople and professional scientists is one of the main challenges and key success factors for each citizen science project (see, e.g., Finke, 2014). But what is effective and engaging communication and how can it be established in CS projects? Which obstacles are both professional and lay scientists facing in this respect? The workshop “Let’s talk science - but how? Considering the communicational challenges of Citizen Science” addressed these questions in an open format with people from diverse professional backgrounds during the Austrian Citizen Science Conference ÖSCK 2017.

## METHOD

The workshop was based on the unconference model, which encourages participants to suggest and choose the specific topics they want to discuss. Instead of having a series of talks and formal discussions between lecturer and audience, the unconference model promotes interaction and conversation between participants (Budd et al., 2015), which makes it particularly suitable for a workshop environment.

In order to identify the topics to be discussed, attendees wrote down and presented the questions and issues they would like to discuss in the workshop. The facilitators collected and clustered these points together with the participants to overarching topics. From those, the plenum selected four which were considered most interesting and discussed them in small groups without facilitation. The workshop concluded with a plenary session in which the groups presented their results and opened them for discussion.

The majority of the twenty workshop participants were professional scientists involved in CS projects in different phases of implementation, coming from different disciplines and institutions ranging from meteorology, zoology or biology to palliative care. There were also communicators and educators dealing with CS attending, as well as a software developer involved in the topic.

## **RESULTS**

The group discussions of the workshop brought forward the following ideas and results:

### **Communication on Eye Level**

Participants emphasised that scientists have to communicate with citizen scientists at eye level, which entails getting to know them, their interests and approaches towards problems. This has to be considered in the project design and process, where ideally citizen scientists can get involved already in the project planning phase, identifying interesting research questions. If necessary, citizen science projects must be flexible and allow for change and adaptation of methods and outline. It is important to accept possible failures and to communicate that those are important and unavoidable elements of research which can also contribute to knowledge.

Another crucial factor is the communication of project results. Participants found that its form has to change and it should be considered as a joint effort of both professional researchers and citizen scientists. Presentation of project result should be tailored to the target group and also communicated via contemporary formats and platforms outside of conventional scientific dissemination, e.g. social media, videos and e-learning platforms or podcasts. Existing channels like school networks can be used as well.

### **Communication of Data Quality**

The collection of irrelevant, false or redundant data is an issue for citizen science projects. To communicate this problem to citizen scientists without discouraging them is challenging for researchers. The discussants suggested a number of possible solutions, which included not saving irrelevant data or handing over data to other projects that might be able to use it. In order to do that, stronger exchange between CS projects would be necessary.

Another critical point is the quality of the collected data. Quality monitoring is already being applied in many projects. Additional training and qualification of citizen scientists to improve data quality is not always feasible, but the collection of personal data from participating citizen scientist could support the analysis, evaluation and

explanation of differences in data quality. However, providing personal data is increasingly seen critical and CS projects are facing the challenge of explaining the necessity to collect such data without driving citizen scientists away. Personal meetings between citizen and professional scientists were suggested instead of online communication in this matter to facilitate trust building.

### **Synergies between Projects**

At the moment most citizen science projects operate rather individually, using tools developed specifically for the project. Such insular solutions create parallel structures and redundancies. Therefore, participants discussed a standardisation of instruments and processes accompanied by stronger interconnection of CS projects. It is important to consider the different project characteristics, but structures could be opened up and innovative solutions implemented.

This could be shared data clouds from which individual projects can retrieve data or other organisational forms than the current one of isolated projects. Participants also suggested creating a joint platform for CS projects, in which citizen scientists can commonly work on topics and methods, thus increasing effectiveness, outreach, and impact, and promoting exchange and mutual learning.

### **Creating and Sustaining Participation Motivation**

Participants discussed how it is possible to create and maintain motivation to participate in CS projects. They stressed that the motivation has to start already with the definition of the research question. Citizen scientists have to be involved in this initial process in order to create a research project they are invested in. It is also important to point out to the citizen scientists what they can gain from participating.

Again, meaningful communication on eye level, tailored to the target group is vital to maintain motivation during the entire project. Professional scientists have to consider the different motivations and characteristics of citizen scientists. Multipliers like local media or associations, archives or libraries can play an important role in the mobilisation and maintenance of participation of citizen scientists, and help to recruit and connect them. Special activities, for example field trips with experts, could further increase the motivation of citizen scientist to contribute to a project.

### **CONCLUSION**

Summing up, the workshop showed that there is a strong need from professional side to engage in a bilateral communication with and gain more information about citizen scientists, but also to exchange experiences between different CS projects. Online

communication is not seen as sufficient, additional personal communication creates a stronger commitment. The participants suggested several ideas which can be taken as inspiration for further developments in CS.

**Keywords:** citizen science, communication, unconference, data quality, synergies, participant motivation

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