

# "I have good news and bad news too". Motivation and Manipulation in Citizen Science Projects

**Nicola Moczek**

*PSY:PLAN Institute for Architectural and Environmental Psychology,*

*Libauer Str. 14, 10245 Berlin, Germany*

*E-mail: [moczek@psyplan.de](mailto:moczek@psyplan.de)*

The talk pleads for a cooperation between citizens and scientists that is characterised by mutual respect, openness and genuine interest in the respective competences. In the keynote, psychological terms and approaches as well as various motivation theories, models and studies are presented and discussed in relation to their relevance for Citizen Science. The researcher and consultant points out the contrast between the high interest in "participant motivation" and the low actual knowledge about it and gives possible reasons for this. She also shows the fine line between "motivation" and "manipulation". Successful projects clearly define different tasks within the project and analyse and communicate the goals and motives of all participants and consider them appropriately in the project. In this way, the diversity of competences and perspectives of all participants could be strengthened.

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## 1. Introduction

We humans have been learning in social contexts since the beginning, mostly through observation (so called “social learning” [1]). We are constantly observing the behaviour of others. We infer from observation the possible reason for a person's behaviour. We thus develop subjective theories about what benefit or function the behaviour might have. The observation is followed consciously or unconsciously by the evaluation of whether the observed behaviour could also have a benefit for us. If the judgement is positive, we are inclined to show a similar behaviour.

### 1.1 Tom Sawyer and his approach to motivating others

The American writer Mark Twain created Tom Sawyer in 1876. Tom receives, as punishment, the work order from his Aunt Polly: "Paint the fence!". Reluctantly, he carries it out. In motivational psychology we call this extrinsic motivation. Tom does not want to paint the fence himself. He does it - according to the presenter's interpretation - for several motives, which could be to ward off further trouble with his aunt, pretending to act autonomously towards the neighbourhood children and to protect his social status, pretending that he really enjoys painting, as if his motivation was intrinsic. As an intended result, the other children become curious and also ask to paint the fence. Transferred to participation in Citizen Science projects, Tom thus has the role of project leader (even though this story is not about research and for most project leaders the work is not a punishment). We can learn from this example that Tom is very adept at using strategies of social learning, manipulation and motivation to successfully delegate his work. In addition, one advantage of painting is the high "self-efficacy" [2]. The consequences can be experienced immediately and are visible to all.

## 2. Citizen Science is mutual cooperation between different groups of people

A key definition is: "In Citizen Science projects, academic and volunteer scientists (so-called Citizen Scientists or hereafter CSV) work together and share a common research interest" [3]. Therefore, we actually have to deal with the motives of all groups. But to put it clearly: we can only ever interpret the motives for doing something in close connection with the activity. Only then can we understand the function of it. Unfortunately, we often have to limit ourselves to a pragmatic approach in research. We then do not research the motivation to carry out a very specific activity (e.g. recording and forwarding bird calls), but look at the sum of all possible activities in the citizen science project.

In our survey among all CS projects of the "Citizens Create Knowledge" platform, 78 out of 140 projects participated in summer 2020 and allowed us deep insight into their work [4]. The analysis of the distribution of typical tasks between the scientific staff and the CSV allows an insight into the cooperation in the research process.

It is noticeable that the distribution varies in individual groups of activities (Figure 1). Around half of the tasks are predominantly carried out by staff (such as administrative tasks, selection of research methods). About one fifth of the tasks are carried out by CSV, which are the particularly time-consuming activities of data collection and processing. Almost a third (27%) of the tasks are performed by both groups, scientific staff and CSV. Data evaluation and interpretation are among the largest share are discussion of results and dissemination. (For a detailed presentation see [4].)

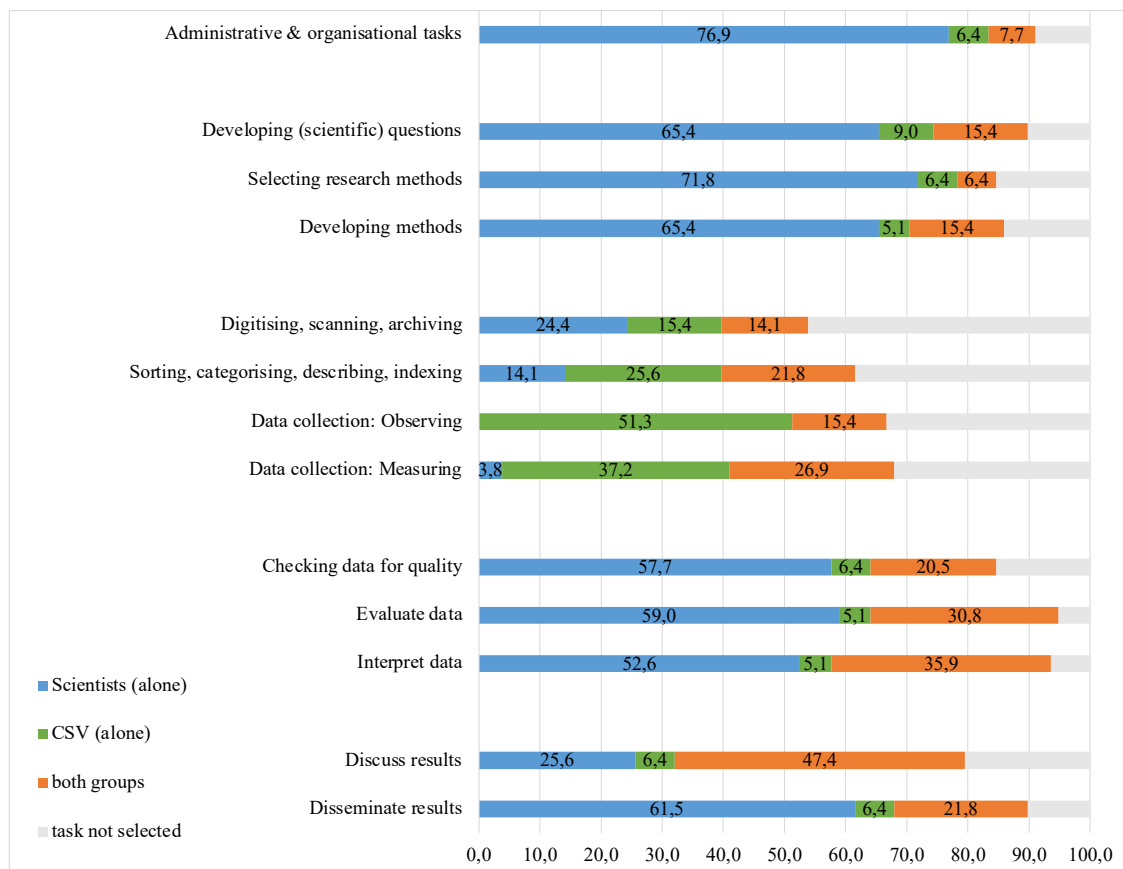


Figure 1: Organisation and allocation of various scientific tasks in the selected projects.  $N = 78$ . The percentages indicate the respective distribution sorted in descending order.

## 1.2 Which factors might influence volunteering in a citizen science project?

With regard to volunteering, the American social psychologist Louis Penner was the first to distinguish this issue 2002 in a theory-based way. He presupposed for sustained volunteering that it is an intentional, planned and purposeful behaviour, carried out over a longer period of time and usually takes place in an organisational context. He set up a complex model of sustained voluntary engagement [5]. According to this, various clusters of influencing factors affect commitment: the environmental variables of the project organisation and on the side of CSV personal circumstances, socio-demographic variables and motivation (i.e. person variables). The model has gained renewed attention in the context of Citizen Science because Sarah West and Rachel Pate-man simplified and adapted it in 2016 for a well-received article [6].

## 1.3 Some thoughts on exploring motives for volunteering

What motives would Tom and his friends report if we could ask them about fence-painting? We have to accept that not all of the motives are accessible to spontaneous consciousness; these are called implicit motives. With the help of methods like questionnaires or interviews, only ‘cognition-guided’, so-called explicit motives can be researched. These are the motives that people attribute to themselves and about which they can or want to report. They are linked to our self-

concept in the social context, to language and awareness (cf. [7]). However, planned, purposeful and attentive self-observation is limited, and may be influenced by social desirability and self-deception (cf. [8]). In the study of 78 German projects we also learned, that the projects know very little about the CSV. Only two thirds ask for contact details, less than one fifth know the motives or the previous and self-reported increase in knowledge.

The presenter developed the scale system MORFEN-CS (eight Motivational and four Organisational Functions for Voluntary Engagement in Citizen Science Projects) and has so far used it in the natural sciences [9, 10, 11]. In these studies, participants rated altruistic motives as more relevant than egoistic ones. She would be happy if MORFEN-CS was used by other projects so that we can compare and discuss findings.

### 3. Conclusion

When talking about motivation, project coordinators are often actually concerned with attracting people to volunteer. The topic is closely linked to human resource management and consumer psychology. Volunteers should be “motivated” to contribute their time, experience, skills, networks and working materials. But often it is not precisely defined which tasks are to be done and which target groups are to be addressed. The activities listed in Figure 1 could serve as inspiration for project planning and could help to identify and eliminate possible conflicts of interest between different groups. It should also be checked which competences and framework conditions are relevant for volunteering and which benefits the activities can fulfil for the respective target groups. This applies equally to projects initiated by citizens or by research institutions.

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