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Citizen Science in the Humanities: A Promise for Creativity

Milena Dobreva, Daniela Azzopardi

Library Information and Archive Sciences Department
Media and Knowledge Science Faculty
University of Malta, Msida 2280, Malta
milena.dobreva@um.edu.mt, daniela.azzopardi@um.edu.mt

Abstract. Citizen science is gaining popularity and becoming a new outlet for people who are not professionally trained to be researchers in order to contribute to a wide range of research. Bonney et al. (2009) suggested that citizen science projects differ in the type of involvement of citizens and pointed out that there are three types of projects, contributive, collaborative, and co-created. By their different nature they provide different opportunities for citizen scientists to participate in research, ranging from merely helping with trivial data collection tasks to formulating new research questions. Within the citizen research area, Humanities are still moderately present and tend to tap mainly into crowdsourcing activities which fall under the contributive project type. Our paper starts by outlining some of the key developments in citizen science; then we present some Humanities-related citizen science initiatives, and argue that citizen research in the Humanities is still under-developed compared to other domains of knowledge.

Keywords:, citizen science models, crowdsourcing, motivation, activities

1 Introduction

In the Green Paper on Citizen Science commissioned by the EC [2], the titular term is defined as "general public engagement in scientific research activities when citizens actively contribute to science either with their intellectual effort or surrounding knowledge or with their tools and resources". Although this term gained popularity recently to reflect on the engagement of unprofessional researchers and currently is associated with big groups of such contributors, it was normal that research in previous ages was normally done by people who had other professions. However today we make a clear distinction between those who chose research as their vocation and members of the general public who are willing to contribute some of their time to community or personal research. Thus despite the introductions of science as proper profession, citizen scientists are far from extinct. This is mostly evident in projects centred on the sciences, where citizens are led by professional researchers in studies which revolve mostly around observation and notation in multiple locations or across longer time spans.

adfa, p. 1, 2011.

The longest running study utilizing citizen science is the Christmas Bird Count[1] which started in 1900 and this year concluded its 114th study. Volunteer birdwatchers are used to observe and note the amount of birds in an area outlined to them by the project leaders.

A similar long-continuing effort is the creation of a dictionary of Mediaeval Latin which took 101 years to complete. The effort produced seventeen volumes of work, the first of which was published in 1975 – with work on them launched as early as in 1913, and the last one published in 2013.[2] This project was only made possible with the help of crowdsourcing and the help of dedicated volunteers. The work will also be published online and made accessible for free thanks to a grant provided by the Packard Humanities Institute. [3]

The advancement of ICT, Internet and mobile technologies give new opportunities for bringing together groups of people to contribute to research. This resulted in a rapid growth of the citizen science initiatives around the globe, and subsequently in an increased body of academic publications discussing various aspects of it.

To illustrate the growing popularity of citizen science, we did a scholarly literature survey in two digital libraries (IEEE and ACM. Fig. 1 captures the change in the volumes of publications about citizen science retrieved from ACM and IEEE based on the year they were published.

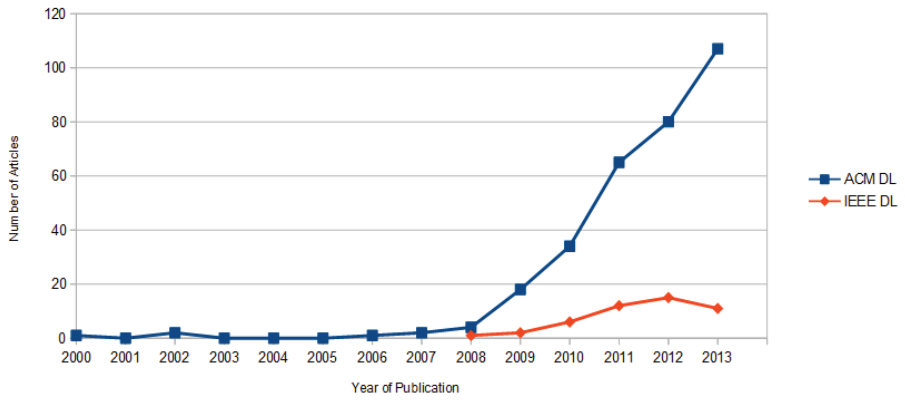

Fig. 1. ACM and IEEE DL articles containing mention of the term "Citizen Science"

There was also a substantial interest to the potential of citizen science in funding agencies who are the main source of funding of such projects. Wiggins and Crowston

[1] More information on this study can be found at http://birds.audubon.org/christmas-bird-count.

[2] http://www.bbc.com/news/education-28952646

[3] http://www.oxfordtimes.co.uk/news/9070280.Latin_dictionary_is_a_lifetime_career

[7] who invited some 840 projects to respond to a survey about citizen science and as a result created 128 profiles of project, summarise the most popular funding sources of the projects as follows: federal and other grants – 68 projects; in-kind contributions – 31 projects, private donations – 23 projects, participant fees: 11 projects.
The potential of citizen science had been as well addressed in a number of EC-funded projects, e.g. **socientize** (http://www.socientize.eu/) which is working on a white paper on citizen science, and **Civic Epistemologies** (http://www.civic-epistemologies.eu/) which aims to develop a roadmap for citizen science use in the cultural heritage domain.
Since research is one of the most creative human activities, a still under-explored area is to what extent unprofessional researchers are involved in trivial repetitive tasks as opposed to creative activities related to research, and how citizen science could provide a creativity outlet for the members of the wide public. As an initial study related to this question we decided to explore how citizen science is used in the research in the Humanities.

2 Citizen science in the Humanities

2.1 Crowdsourcing Use in the Humanities

The application of Citizen Science in the field of Humanities has been less common than in the sciences, however one should not assume that they are not existent. Oomen and Aroyo [5] list several examples where amateur researchers and labourers contributed to process or gather data. They highlight six different types of crowdsourcing related to digital cultural heritage.
The first is **correction and transcription** where the citizen is granted access to a database of text, generally scanned manuscripts, and asked to transcribe or make correction to text which was already trancsribed electronically via a computer programme. **Contextualization** happens when citizens submit data such as letters, photographs, stories or other materials in order to gather a meaningful context. Submitting data in databases with the aim of completing them or making them more sound is instead known as **complimenting collection**. **Classification** is the practice of tagging the data, or labelling it, in order to easily group similar data or locate relevant information in a short period of time. **Co-curation** seems to occur mostly with projects involving the aesthetic arts and allows the citizens to interact with institutions regarding selection activities for publication. Lastly there is **Crowdfunding** where the citizens gather together money and resources in order to support efforts initiated by others. Recently, Noordegraaf et al. suggested a model for crowdsourcing in the cultural heritage context which explores six pillars: institution, collection, goal, crowd, infrastructure, and evaluation [4].

2.2 Some Project Examples

An example of a recent humanities centred project based on data gathered via citizen science is the project "Letters of 1916"[4]. This website gathers letters to or from Irishmen submitted from people all around the world. People can also opt to translate submitted letters. This project has helped unveil various details surrounding the lifestyle of people back in those days, thus creating a new intimate perspective of the early twentieth century. One interesting feature of this project is that it develops a hybrid collection featuring letters belonging to the collections of cultural heritage institutions and letters belonging to personal archives.
The British Library also experiments in the crowdsourcing domain with its project "Georeferencing: help us place our digitized maps"[5] where citizens are encouraged to help the British library identify their historic maps and their modern day location. Helpful users are cited and thanked. These examples as well as the aforementioned forms that citizen science can take show that these are mainly data-focused projects and that citizens are not really taking part in other stages of the research process, such as formulating research questions, choosing methodology and discussing the results.

2.3 Creativity, Citizens and Crowdsourcing in the Humanities

The range of activities to which unprofessional researchers contribute in citizen-science projects as suggested in [7] includes the following:

1. Define question
2. Gather information
3. Develop hypothesis
4. Design study
5. Data collection
6. Analyse sample
7. Analyse data
8. Interpret data
9. Draw conclusions
10. Disseminate results
11. Discuss results and ask new questions

Those activities assume different levels of creativity. The tasks of transcribing historical letters or providing geolocations would normally be considered to be quite trivial and are from the contributive type of citizen involvement as defined in [1]. Thus one research question for the future is how citizens involved in Humanities research could contribute to creative rather than trivial tasks? Furthermore, it is essential to understand what is the motivation of citizens to contribute to such projects. Some initial research on the motivation in citizen science projects in biodiversity had been done in [6] but studies in the Humanities-related citizen science initiatives are still lacking.

[4] http://dh.tcd.ie/letters1916/
[5] http://www.bl.uk/maps/

3 Discussion and future work

While citizen science grows in popularity in general, the majority of citizen science oriented projects take place in scientific areas. Fig. 2 captures the distribution of 47 citizen science projects across domains, which is based on research done by Franzoni and Sauermann [3].

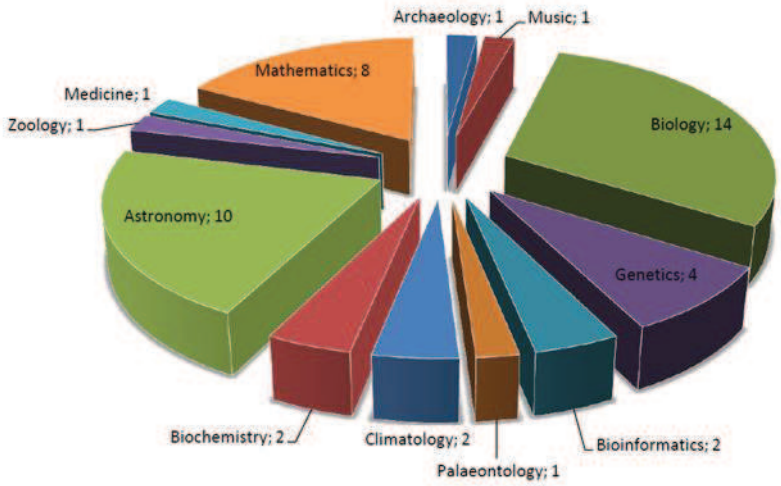

Fig. 2. Distribution of citizen science projects across disciplines based on [3]

Why citizen science is underutilised in the Humanities when it is a profitable and inexpensive means of expanding research? The currently ongoing project Civic Epistemologies is striving to develop a roadmap for the use of e-Infrastructures to aid in the inclusion of citizens in research related to cultural heritage and digital humanities. This project will use a mixed methods approach to understand the different demands and expectations of citizens and stakeholders (cultural institutions, infrastructure providers). It will combine focus groups to capture current opinions.

The project will also conduct three case studies. The first will explore the use of smartphone application based as a pocket guide for sightseeing in Coventry, United Kingdom. The second case study revolves around people who volunteer to take part in cultural activities as a way to get more involved in society and increase their sense of citizenship and love for the cultural arts. It will focus on their experience to get in touch with these cultural events, their methods, any difficulties they might have encountered and how important their cultural heritage is to them, amongst other things.

The third case study revolves around location names in Ireland. As is the case with many rustic places, street names hold more than just a name to themselves, they carry with them a history, signalling important events which could have taken place in the nearby area or people who lived in the vicinity or who visited the place, amongst other things.

The combination of direct consultation with citizens through the focus groups which will be held in Malta, Sweden and the UK, and the in-depth case-will provide insights for the roadmap for e-infrastructures in order to better their integration of citizen scientists related to cultural heritage.
Another domain which can be explored further is related to the use of citizen science as an approach to use more intensively eInfrastructures offering access to cultural heritage content for educational purposes and enhancing skills of the citizens. This is an area addressed by some of the research activities of the Advanced Computing for Innovation (ACoMin) project.
With such current research we could expect that in the near future we will have better understanding how Humanities research could benefit more from citizens' contribution, and to what extent creative tasks constitute part of the motivation of citizen researchers.

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