

## Public Libraries Can Be Open Science Laboratories for Citizen Science Projects

Cigarini, A., Bonhoure, I., Vicens, J., & Perelló, J. (2021). Public libraries embrace citizen science: Strengths and challenges. *Library & Information Science Research*, 43(2), 101090. <https://doi.org/10.1016/j.lisr.2021.101090>

Matthew Bridgeman

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Article abstract

**Objective** – The objective of this study was to evaluate the potential of libraries supporting citizen scientist (CS) projects.

**Design** – Mixed methods program evaluation study.

**Setting** – 24 public libraries in Barcelona, Spain.

**Subjects** – Public librarians and library users.

**Methods** – It is a mixed methods and mixed population study done in several phases. The first phase involved training 30 librarians how to conduct a citizen science project. They were given a pre and post survey about their perceptions of citizen science and comfort-level in conducting a project. The second phase involved a project run by the now-trained librarians with library user participation. At this phase a questionnaire was given to the users at the start and end of the project. Finally, a focus group of librarians was asked about their project. The responses were evaluated through thematic analysis. Seven libraries participated in the focus groups.

**Main Results** – During the first phase of the study, the survey found the librarians were pessimistic about user participation in a citizen science project, both at the beginning (75%) and at the end (79%) of the session. Though they felt confident in discussing citizen science (100%) and had high satisfaction in the training (70%), only 42% felt confident to conduct a project on their own. The second phase involved the users, 94% of whom had never participated in a CS project. At the end, 70% of users said the project positively changed their perceptions of the library and 70% were satisfied with the experiment. During the focus groups, librarians said the project brought new users into the library and had the potential to build more relationships among participants and with the community. Major challenges discussed were user commitment to the project and the workload required by librarians, however they all answered positively when asked about continuing with CS projects.

**Conclusion** – This study showed that citizen science projects can be successfully implemented in public libraries. Public libraries are facing challenges caused by societal change, the rise of open science, and more transparent and novel democratic ways of knowledge production. Updating public library infrastructure would be needed to support these projects more fully. This may involve building partnerships and developing new guidelines. There is potential for public libraries to be leaders and innovators in citizen science.

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*Evidence Summary*

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**Reviewed by:**

Matthew Bridgeman  
Information and Education Librarian  
Robert Wood Johnson Library of the Health Sciences  
Rutgers, The State University of New Jersey  
New Brunswick, New Jersey, United States of America  
Email: [Mcb226@libraries.rutgers.edu](mailto:Mcb226@libraries.rutgers.edu)

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**Abstract**

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group of librarians was asked about their project. The responses were evaluated through thematic analysis. Seven libraries participated in the focus groups.

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### **Commentary**

This study was evaluated using the CAT: a Generic Critical Appraisal Tool (Perryman & Rathbun-Grubb, 2014). Cigarini et al. (2001) are information and knowledge, engineering, and physics researchers at Universitat de Barcelona and Universitat Oberta de Catalunya. They are well versed in STEM (Science, Technology, Engineering, and Math) research but lack a library science perspective. While the library science component is not necessary, it can be beneficial in future studies. The authors began by providing a history of citizen science and potential of libraries as a project space. The question of the study—Can libraries be hubs for citizen scientists?—is adequately addressed by the data. Though the data visualization used is unclear at first, it does match the data after some review. They used a similar survey to evaluate subject responses before and after the project. The final focus group also answered some of the challenges faced throughout the course of the study. Their conclusions matched what the data say. Overall, the study is well done, but could be represented better.

This is a project full of promise. Cigarini et al. (2001) defined citizen science as: “Beyond open access to data, publications, and other research outputs, citizen science facilitates the active participation of citizens in the scientific research process.” Conceptually, the public library is the perfect location to nurture citizen scientists. It is free and open to citizens, and librarians can provide access to open science resources. It provides space and support structure. Public library involvement with citizen science is attempting to make the library analogous to a laboratory. This correlation is not unfamiliar in the library world. Parallels can be drawn to the rise of makerspaces. Makerspaces are a popular trend in the public library space, reinventing the library from a passive repository of knowledge to a creative place and including the use of 3D printers, electronics, Cricut, and more (Kim, 2022). The Free Library of Philadelphia even has a kitchen in it for patrons to use. Libraries even share some of the same challenges as citizen science projects related to roll out, particularly user engagement. Perhaps the next project can draw from lessons learned in implemented makerspaces.

In their article, Ross and Sennyey (2008) argued that libraries must make fundamental changes to adapt to the new information world. While they discussed academic libraries specifically, and though libraries themselves have proven more resilient than they suggested, the main point still stands and is relevant to public libraries. Creating a citizen science center may be one useful adaptation. The fact

that there was positive engagement is a promising sign, and it should be encouraged at other public libraries. The main challenge could be spreading the word on citizen science and linking that with the library.

While the project was not perfect, it still showed possibility. Perhaps there can be collaboration between public librarians and local academic librarians. Public librarians can provide support to citizens, while academic librarians can help with open science resources. There are also opportunities to build relationships with schools to provide more learning experiences and relate data to real world examples. The possibilities are exciting; more projects like this should be encouraged.

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