Are Citizen Science and Crowdsourcing the Same? An Investigation on the Role of Framing on Participant Outcomes

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Recent literature has acknowledged the conflation of citizen science and crowdsourcing, acknowledging that crowd sourcing and citizen science do share superficial similarities in their modes of participant engagement and participant motivation. Despite these similarities, there is a large disparity in participant engagement between crowd sourcing and citizen science. This disparity suggests that framing of these projects (citizen science versus crowd sourcing) also plays an important role in decisions about participation. Additionally, participant outcomes, in terms of beliefs about scientific practices and scientific trust, between these two project types has not yet been investigated. To investigate the impact of framing, participants were recruited to a web-based public participatory research program where half the participants were engaged in a citizen science framed program and the other were engaged in a crowdsourced framed project. The participants in each frame were engaged in the same task (reporting leaf budding/leaf drop), but the way the projects were framed differed. Post-participation we see that there are indeed significant differences in participant outcomes between individuals who participated as a citizen scientist versus as a crowdsourcer. Particularly we see differences in terms of their views of science, identity, and trust of science. This work is the first to the authors' knowledge that aims to evaluate if crowdsourcing and citizen science projects can be treated synonymously when discussing potential for public engagement and broader trust and literacy outcomes.

If You Don't Call It Citizen Science, What Happens to Participation?

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What happens when you don't call a citizen-science project a "citizen science?" This talk will share the results of a short-term research project where new participants were either introduced to the project they had just joined as a citizen-science project or as an environmental stewardship project—frames that are both highly relevant descriptors of the project but that we expected to activate different identity-based processes among participants. For instance the word science has been stereotypically associated with concepts of "maleness"? a pattern seen in the underrepresentation of women in science and math disciplines (e.g., Ceci, Williams, & Barnett, 2009) and in psychological measures that reveal a strong subconscious association between the two concepts (Nosek et al., 2009). In contrast "environment" may be more strongly associated with concepts of "femaleness"? as seen in research that finds stronger concerns for the environment among women than men (e.g. McStay & Dunlap, 1983; Stern, Dietz, & Kalof, 1993). For one month new participants submitted data to the project, engaged with follow-up emails, and read educational content that solely framed their effort as either citizen-science or environmental stewardship. Did this impact the quality of data submitted or change patterns of engagement with this online project?
Public Perceptions of Citizen Science
Karen Oberhauser - University of Minnesota; Eva Lewandowski - Wisconsin Department of Natural Resources; Wendy Caldwell - University of Minnesota; Dane Elmqquist - USDA-ARS
Much remains unknown about how members of the public view citizen science. We conducted a survey of public familiarity with and perceptions of citizen science. Survey participants were attendees at the 2015 Minnesota State Fair, an annual event attended by over 1.7 million people in 2015. Fewer than half of respondents were familiar with the term "citizen science," but over 70% were familiar with the concept by another name. Most respondents were more confident in hypothetical citizen science findings when professional scientists were involved to some degree, compared to situations in which only citizen scientists were involved. Confidence in citizen science findings increased with age. Fewer than half of respondents (and more men than women) were confident in their ability to perform science process tasks, with the exception of collecting data; 53% were confident in their ability to collect data and only 31% in their ability to design research studies. Of the data collection tasks we described, 70% were confident in their ability to monitor rainfall and only 32% in their ability to identify plants. Collecting data (72%) and writing reports (23%) were rated highest and lowest, respectively, when participants were asked which science process tasks they would enjoy most, and making one-time animal observations (56%) and observing phenology (41%) were the highest and lowest rated data collection tasks, respectively. We suggest ways in which leaders of citizen science projects can use these findings to better promote volunteer recruitment, retention, and engagement.

Why Cit Sci? Say What You Mean and Mean What You Say
Tiffany Beachy - Great Smoky Mountains Institute at Tremont
In this exciting era for our field, the term 'citizen science' has finally achieved near 'household' use. We have more participation than ever in myriad projects across the globe. In our excitement to promote the benefits of citizen science as a legitimate avenue for scientific discovery, we as practitioners must be careful not to dilute its influence by mislabeling activities and using imprecise communication. Great Smoky Mountains Institute at Tremont is a residential environmental education center that has been connecting people and nature in the Great Smoky Mountains National Park since 1969, and one way we accomplish our mission is by facilitating deep connections through hands-on field research. As we celebrate the successes of our award-winning citizen science program, we also realize that at times we have succumbed to the temptation to over-generalize our communication. Do all of our participants really engage in citizen science, or are we attaching the 'citizen science' label to activities that merely increase scientific literacy? What is the difference between citizen science and scientific literacy? When is it most impactful to incorporate a citizen science project into a lesson? We have found that there is great educational value in both citizen science and scientific literacy. These concepts are not mutually exclusive, but it is important to communicate the differences to avoid misleading participants and educators. Our presentation will broach this subject and explore avenues for improving communication and strengthening formal and informal science education.