Press release

Berlin, March 21, 2022

Citizens can generate novel and high-impact research questions for science

Allowing citizens to have greater involvement in the early stages of research studies could be the key to providing new, innovative perspectives and furthering high-impact research, according to new findings published in the journal Research Policy.

The authors suggest that allowing citizens to help set the research agenda and provide their own research questions and hypotheses could have advantages over the current approach, where academics decide upon research questions and then later relay the findings to the public.

This finding comes from research by Henry Sauermann, professor of strategy at ESMT Berlin, alongside colleagues from Copenhagen Business School and the Open Innovation in Science Center of the Austrian Ludwig Boltzmann Gesellschaft. The authors were keen to understand what kinds of research questions non-professional citizen scientists would come up with and how those questions compare to typical questions generated by academics in the traditional research process.

The researchers analyzed two projects in the health sciences that crowdsourced research questions in order to identify new areas of research. Questions were submitted by a diverse pool of individuals, including patients and their relatives but also medical practitioners such as nurses and medical doctors. For comparison, the researchers also extracted research questions from academic conference proceedings.

Independent professional scientists then evaluated both sets of questions with respect to novelty, scientific impact, and practical impact, while being blind to the source. The results show that evaluators scored crowdsourced questions as less novel and scientifically relevant on average, but with similar or higher practical impact.

Once the researchers pre-screened the questions, however, the best 20 percent of crowdsourced questions outperformed professional questions on all dimensions. Moreover, citizen-generated questions tended to be more interdisciplinary, often combining concepts across fields of medicine or integrating ideas from outside of medicine.

Professor Henry Sauermann says, “Many academics try to solve important problems that are affecting citizens, such as in the field of medicine. But they often hit a brick wall. Academics can go round in circles, looking at the same issues and trying similar solutions. Citizens who are affected and have experience with problems can bring in a new perspective and potentially be the key to generating new research trajectories and practical solutions.”

The researchers recognize that having citizens come up with research questions is not always an effective way to set the direction of science. However, in some instances, it could be the key to understanding an issue further and offering a different perspective. More research is needed to find out

what kinds of citizens can make the most useful contributions and how the diversity of contributors shapes crowdsourcing outcomes.

Co-author Marion Poetz, professor at Copenhagen Business School and scientific director at the LBG Open Innovation in Science Center says, “Researchers should consider at what stages in the research process crowds could help them be more effective, and ultimately have a greater impact with their research. Involving citizens, or particular subgroups such as patients and medical professionals, from the beginning can help steer research projects in novel directions and increase their effectiveness in solving real-life problems.”

The researchers state that “applied” research projects that address societal issues may benefit most from gathering ideas and research questions from citizens. Such projects are common in medicine but also fields related to sustainability such as environmental sciences, education, and economic development. But citizens have also made important contributions in areas such as astronomy, biology, or quantum physics, suggesting many more opportunities to tap the wisdom of the crowd to advance scientific research.

The original paper can be found here.

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