

## VIEWPOINT

# A culture shift to support public involvement and engagement in research

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The need to empower people to understand their health and well-being has never been greater. However, current research culture does not necessarily prioritize public involvement and engagement, and many scientists are left under-equipped to reap its benefits. Here, we outline both the positive need for purposeful public involvement and engagement in biomedical research and major systemic challenges. While some of our examples stem from the UK, we believe the learnings from them have global significance.

## Introduction

“Doing public outreach...reminded me why I wanted to be a scientist in the first place.” —[Fracchiolla, 2023](#).

In 2020, the world was hit by a novel coronavirus outbreak. Research on COVID-19 progressed so fast, and the significance of that research for public health was so immediate, that it broke free from the classical peer review process. An unprecedented wave of preprints and communications became available that made it difficult to untangle solid and clear information from preliminary observations, mere opinions, and, often enough, misinformation and disinformation. The need and value of experts engaging with the public to raise awareness, clarify science, and empower people to understand their health and well-being had never been greater ([Koretzky et al., 2023](#)).

Science and scientists do not exist in isolation. Most academic research is funded by public money, charities, and/or donations, and thus scientists have a duty to be transparent and accountable. Sharing the mere facts does not suffice—there must be trust and confidence both in the science

and in the scientists. Building this trusted relationship and overcoming the apparent power imbalance between expert and public opinion and interests is the responsibility of both sides. This must include a willingness to listen, care, be honest, respect inconvenient facts, and question one’s preconceptions. Involving and valuing the public in the research process thus ensures greater impact via enhanced acceptance and adoption of new findings.

The term “public involvement and engagement” covers the many forms in which research and learning are shared with society and society benefits in turn, gaining skills, knowledge, and understanding. Other phrases may be used to encompass the same concept including civic mission, outreach, and action-based research, but the general idea is that of a two-way interaction, with the goal of generating mutual benefit for enhancing research, knowledge, processes, and systems ([Eberl et al., 2023](#)).

The ways to involve and engage the public in research are as diverse as the underlying research and the researchers themselves (Fig. 1). The possibilities are endless and range from activities designed to inspire and provoke curiosity through to deeper consultations and public partnerships.

The key factor is that the activity should be purposeful and engage the key stakeholders, often by actively approaching the target community ([Spencer et al., 2022](#)). Consideration needs to be paid to the diversity of who is involved, the accessibility of the activity, and the duration and intensity of the involvement ([McLean et al., 2018](#)). Public involvement and engagement is a team effort that often depends on the creativity, enthusiasm, and helping hands of colleagues and volunteers, and brings together people from multiple disciplines, backgrounds, and talents—with scientific knowledge and lived experiences valued equally.

## The benefits of public involvement and engagement

### Research priorities and relevance

Public involvement and engagement can exert direct influence on shaping research directions. This approach is spearheaded by organizations such as the James Lind Alliance that bring patients, carers, and clinicians together to identify and prioritize questions and uncertainties that matter most to people ([Nygaard et al., 2019](#)). Involving the public in the development of funding bids, delivery of research tasks, and dissemination of findings adds value for

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**Figure 1. Interactions between scientists and society, and the mutual benefits for either side.** Involving and engaging the public in research can take many different forms, depending on the field of research, the stakeholders, the level of interaction, and the kind of information and decisions involved. Inner circle: examples of benefits for researchers and the public; outer circle: mechanisms of impactful public involvement and engagement. Designed using assets from <https://Freepik.com>.

both researchers and public contributors, and maximizes the applicability and impact of the research. Key here is the facilitation of relationships, fostering mutual trust and respect, and enabling quality interactions between researchers and the public. This needs time and commitment from all parties to create a constructive, open, and safe space to explore and respect a wide range of views. However, even in the challenging and fast-moving environment of the COVID-19 pandemic, public involvement and engagement was successfully able to influence the scientists' ways of thinking and shape the research (Aquino et al., 2023).

#### Accountability and fostering trust

A common misconception in the public domain is the idea that “the science” is a fixed truth that gives ultimate answers. This interpretation is, to some extent, based on a poor understanding of the scientific method itself, which depends on constant revisiting of hypotheses and confirming, refuting, or revising existing theories. As such, “the science” cannot give a yes/no answer but only a probability—and indeed, much of what we know now is just a snapshot that may be later overturned (Prasad et al., 2013). Understanding the risks of a condition or situation may not be clearly communicated and contrast with peoples' lived experiences or their values. This is particularly pertinent in the increasing polarization and disenfranchisement of public debates. Sadly, some parts of society harbor an overly negative perception of science and

scientists, expressing skepticism or even outright rejection of facts and evidence-based recommendations (Bajaj and Stanford, 2021; Lackner et al., 2023). This cannot be ignored and requires patience, empathy, and community champions to address global health priorities such as vaccine hesitancy or climate change (Whitehead et al., 2023).

#### Policy impact

The majority of policymakers have little or no scientific or healthcare background (Myers and Coffé, 2021) even though science and technology are integral in modern society. Meaningful expert advice that explains complex research findings to lay stakeholders is critical to allow politicians and civil servants to make informed decisions, whether this affects public health or relates to driving an innovative research agenda. As such, researchers have a duty to engage with policymakers. In turn, public involvement and engagement also represents a unique opportunity for scientists and the public to influence policy (McKee et al., 2022). Many universities and professional organizations therefore help facilitate such dialogue and support researchers to submit evidence to public inquiries and parliamentary sessions, write consultations, and sit on advisory bodies. In the UK, the Parliamentary Office of Science and Technology sources reliable research evidence and prepares short briefings to help members of Parliament navigate research, and as such is a valuable bridge for academics to engage with policymakers.

#### Inspiring, sharing, and lifelong learning

Public involvement and engagement ensures new knowledge is shared with relevant stakeholders in a timely manner, which can enhance science understanding, spark curiosity, and represent a valuable part of lifelong learning. This can be achieved through simple science communication via digital and print means, to bespoke events and workshops in public spaces. The less dry and conventional, the better to attract people who normally would not engage with scientific topics, as illustrated by the success of activities such as the “Pint of Science” festivals (bringing scientists to pubs and cafés) or the “Dance Your PhD” contest (explaining scientific projects through interpretive dance). Shifting location to sites such as housing estates, shops, and allotments can also enhance take-up and reach new audiences (Tyrrell et al., 2022). Often, these types of activities represent excellent opportunities for researchers to get trained and exposed to the reality of engaging the public. In this context, a particularly promising approach to embedding public involvement and engagement in higher education is the concept of “service learning” or engaged teaching, in which students apply knowledge and skills to community needs, while gaining further understanding and seeing the relevance of their learning (Evans et al., 2015).

#### Collaborating and participatory research

Close involvement of members of the public in developing research can be powerful and

inspiring for scientists, leading to development of new research avenues and funding streams. This may also be done to co-produce educational resources (Tyrrell et al., 2024). Another approach is citizen science, which encourages and trains members of the public to capture data such as nature observations or enable data interpretation, participant-led or co-produced with impacted citizens (Vigo et al., 2018). Oral histories, patient involvement, and participatory research are further examples of two-way engagement practices that put stakeholders at the heart of the research process (Aquino et al., 2023).

### Benefits for researchers

Embracing public involvement and engagement has multiple direct advantages for individual researchers and their employing institutions (Eberl et al., 2023). By communicating scientific concepts to different audiences and addressing their concerns, public involvement and engagement-active researchers learn to better communicate both at a professional and at a lay level. Likewise, it makes for more relevant research. Demonstration of societal or clinical impact of research and innovation in fact requires evidence of a close interaction with the immediate beneficiaries. But public involvement and engagement can also be fun and result in a feeling of accomplishment and purpose. This can reconnect researchers with their science, motivate them, and inspire them as well as inspire others. New opportunities, cross-disciplinary research, and new networks emerge naturally when interacting with members of the public. Statistically, a large proportion of the students we train in our laboratories will pursue careers outside academia, and often outside science (Brown et al., 2023). Public involvement and engagement provides key transferable skills and should thus form part of any professional training.

### Barriers to public involvement and engagement for researchers

Despite the undeniable benefits of public involvement and engagement to a productive and inspiring research culture and to society at large, barriers remain that need to be overcome. First and foremost, the traditional academic role model with its rigid focus on research and scholarship can leave little incentive to prioritize activities that do

not result in immediate and quantifiable outputs. Public involvement and engagement, unless purposeful and integral to the research, does not typically yield high-level recognition and academic accolades. For many, it is carried out on a voluntary basis, with little core support, reward, or funding, and outside normal working hours.

In the UK and elsewhere, funders place an ever-increasing emphasis on public involvement and engagement—including a recommendation to meet the national standards for public involvement in research (Moult et al., 2023). This forces research institutions to slowly, and often unwillingly, consider novel and untested approaches to conduct their core business. However, there often remains a lack of central support for public involvement and engagement, a lack of training and funding, and a lack of leadership and role models. Most importantly, the direct and indirect impact of public involvement and engagement can be challenging to assess. This is especially true if activities are not planned as part of the research or indeed teaching process, and if outputs are relatively limited in scope. There are no “quick wins,” as this is in essence an investment into creating a modern research culture and redefining the role of a researcher in the 21st century (Eberl et al., 2023).

On a more practical level, there can be administrative hurdles to overcome—reimbursing the costs for unconventional engagement materials and expenses do not always fit with university bureaucracies. Furthermore, although many public involvement and engagement activities will not class as research per se, they are often mistakenly perceived as requiring research ethics approval. Nevertheless, it is important that responsible practice is built into their design.

Finally, partnering with underrepresented or underserved groups remains a challenge. It requires the establishment and maintenance of trusted relationships to ensure optimum diversity and inclusivity with respect to socioeconomic and health backgrounds, ethnicity, lived experiences, and other criteria. However, this need for a long-term perspective goes directly against academic reality where most researchers are on short-term contracts, with little or no core support from the host organization that could guarantee some institutional memory

and protect past achievements. Too often, trust is lost when the limitations of the public involvement and engagement work are not made clear, funding is fragile, or outputs are not shared back with the affected community. Overall, public involvement and engagement needs to be a continuous and constructive process that takes the direct stakeholders along the entire scientific journey.

### Outlook

Not everyone can or will want to embrace public involvement and engagement. However, mentoring, training, and opportunity as well as institutional buy-in should be made available to everyone. Public involvement and engagement should not be a “distraction” but seen as natural extension and enhancement of the roles of an academic researcher. Employing institutions need to appreciate how impactful it can be when done well and take advantage of collaborative and complementary opportunities in implementing adequate support infrastructures, especially in today’s financially challenging environment. Building a critical mass of like-minded spirits and delivering research and teaching that is meaningful for local communities and society at large requires commitment, core investment, and cultural shift, empowering both researchers and citizens to do purposeful engagement that is enriching and mutually beneficial.

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### References

- Aquino, E.N., et al. 2023. *Res. Involv. Engagem.* <https://doi.org/10.1186/s40900-023-00446-1>
- Bajaj, S.S., and F.C. Stanford. 2021. *N. Engl. J. Med.* <https://doi.org/10.1056/NEJMpv2035827>

Brown, A.M., et al. 2023. FASEB Bioadv. <https://doi.org/10.1096/fba.2023-00072>

Eberl, M., et al. 2023. *Immunol. Cell Biol.* <https://doi.org/10.1111/imcb.12657>

Evans, J., et al. 2015. *Curr. Opin. Environ. Sustain.* <https://doi.org/10.1016/j.cosust.2015.06.005>

Fracchiolla, C. 2023. *Science.* <https://doi.org/10.1126/science.adt7066>

Koretzky, G. 2023. *Nat. Rev. Immunol.* <https://doi.org/10.1038/s41577-023-00964-9>

Lackner, S., et al. 2023. *Nat. Hum. Behav.* <https://doi.org/10.1038/s41562-023-01677-8>

McKee, M., et al. 2022. *Health Policy.* <https://doi.org/10.1016/j.healthpol.2022.01.006>

McLean, I., et al. 2018. *Res. All.* Available at: <https://uclpress.scienceopen.com/hosted-document?doi=10.18546/RFA.02.1.12>.

Moult, A., et al. 2023. *Res. Involv. Engagem.* <https://doi.org/10.1186/s40900-023-00517-3>

Myers, J., and H. Coffé. 2022. *Br. Polit.* <https://doi.org/10.1057/s41293-021-00188-2>

Nygaard A., et al. *BMJ Open.* 2019. <https://doi.org/10.1136/bmjopen-2018-027473>

Prasad, V., et al. 2013. *Mayo Clin. Proc.* <https://doi.org/10.1016/j.mayocp.2013.05.012>

Spencer, S.A., et al. 2022. *Am. J. Trop. Med. Hyg.* <https://doi.org/10.4269/ajtmh.21-0220>

Tyrrell, J.M., et al. 2022. *Res. All.* <https://doi.org/10.14324/RFA.06.1.06>

Tyrrell, J.M., et al. 2024. *Front. Microbiol.* <https://doi.org/10.3389/fmicb.2024.1340350>

Vigo, M., et al. 2018. *J. Am. Med. Inform. Assoc.* <https://doi.org/10.1093/jamia/ocx148>

Whitehead, H.S., et al. 2023. *Vaccine.* <https://doi.org/10.1016/j.vaccine.2022.12.059>