

Where is everyone? Public science consultations are falling flat

Technological advances have a greater impact on society than many people realise. How do we get citizens to participate?

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I took part in two public science consultations recently. What surprised me was the lower-than-expected turnout. It came to the point where I felt sorry for the facilitators because of the long silences, and I ended up "dominating" the discussion.

This incident worries me because I expect more members of our society to be interested in science discourses as they directly affect our lives.

The discussions were on gene editing and the role of artificial intelligence (AI) in healthcare.

Gene editing is a rapidly developing technology with the potential to disrupt how we treat diseases, ranging from rare ones like muscular dystrophy to prevalent illnesses like cancer.

But advances in gene editing come with ethical implications such as whether humans are playing God, or the controversy surrounding unapproved gene editing of babies.

Then it hit me: Maybe people are put off by the scientific language or other factors such as the organisers not making the event relevant to them.

Take the gene editing discussion. I asked a few of my friends who last took biology in secondary school to define "gene". While they could tell me "gene" is associated with DNA and can be edited for therapy, none could explain how genes can be altered.

We should recognise that there will be a spectrum in scientific knowledge, and organisers could consider having sessions where participants are grouped based on similar levels of knowledge. This can create opportunities for public education and inclusive spaces where attendees from non-scientific backgrounds can share freely without fear of being judged.

In 2023, Reach (Reaching Everyone for Active Citizenry @ Home) engaged 230,000 people, focusing on topics such as cost of living, housing and social

mobility. But the statistics are less favourable for national discussions on scientific topics. Out of 290 public consultations between 2011 and 2024, only three are directly related to science.

One discussion which I participated in was a public consultation on the "Ethical, Legal and Social Issues Arising from Human Nuclear Genome Editing" organised by the Bioethics Advisory Committee. I recall the session I attended had only about 20 participants.

There is more we can do to improve participation in public science discourses.

BE DIRECT WITH THE IMPLICATIONS

One overlooked factor for lack of participation is simply lack of time. A paper in the *Frontiers in Public Health* journal reported that Singapore has, on average, total working hours of 44.6 hours per week, ranking it as one of the most hard-working countries. And most non-work time is spent on recuperating from work through socialising over food and in sedentary activities (like Netflix, which I am guilty of).

So organisers of public science consultations have to make the benefits obvious to incentivise participation from attendees who would much rather get some rest.

During a consultation I attended, we discussed whether Singapore should relax or tighten research on non-heritable gene editing. This refers to gene editing that will not be passed to future generations, but is useful to treat diseases. One such application is Chimeric Antigen Receptor T cell (CAR-T) therapy where genetically engineered immune cells are used to treat cancer.

Despite it being effective against blood cancer, CAR-T therapy currently costs about US\$500,000 (S\$680,000) per dose. A few months ago, the Singapore Ministry of Health announced that partial subsidies are now available for gene, cell and tissue therapies including

CAR-T, but even so, many patients will not be able to afford it.

The key to reducing the costs of CAR-T therapy is to invest in home-grown research to develop more affordable technologies for gene editing. Therefore, the consultation on gene editing has significant implications for whether our citizens can get access to CAR-T therapy, especially when one in four Singaporeans is expected to develop cancer in their lifetime.

Although this is my research area, I doubt many of the attendees know about CAR-T and how gene editing affects its price tag. It is imperative for organisers to explain how emerging technologies will affect society and be as direct as possible to motivate people to join in the discussion.

BE INCLUSIVE WITH ORGANISATION

Organisers should create inclusive public consultations to gather diverse responses from our society. Timing is key. A consultation I attended was held in the early afternoon and this could explain its low turnout.

One of the attendees was a nurse working in a community hospital and as she was sharing her thoughts, she was interrupted because one of her patients needed care.

Not all of us have flexible working arrangements and organisers need to take this into consideration if we want greater participation. Having multiple sessions and seeking feedback on participants' preferences on duration and timing might be helpful.

Language also plays an important factor, as there are senior citizens who speak only their mother tongue and dialects.

A session I particularly enjoyed was organised by the National Library Board where I was on a panel discussing in Mandarin the role of AI in healthcare. It was nerve-racking as I am less fluent in Mandarin than English.

But attendees were grateful that they could contribute meaningfully to national conversations. I also observed that when we do not sufficiently engage some groups in our society, they become the most



A 2023 survey by 3M showed that 89 per cent of Singaporeans trust science and 82 per cent agree that there are negative consequences for society if people do not believe in science. However, 40 per cent of respondents felt that if science did not exist, their lives would not be all that different. This suggests that while there is a general appreciation for science, many citizens do not see it as essential to their lives, says the writer. PHOTO: PIXABAY

worried about their lives being disrupted by emerging technologies – so it is crucial for public consultations to be inclusive.

BE CREATIVE WITH PUBLICITY

Based on the 2023 global State of Science Index survey by the company 3M, 89 per cent of Singaporeans trust science and 82 per cent agree there are negative consequences for society if people do not believe in science.

Yet, in the same survey, 40 per cent of respondents felt that if science did not exist, their lives would not be all that different and only 16 per cent of Singaporeans consider pursuing a career in science.

This suggests that while there is a general appreciation for science, many citizens don't see it as essential to their lives. This makes it even more critical for organisers to get creative in how they publicise consultation sessions. To engage different age groups, organisers can capture the attention of teenagers, working adults and senior citizens through TikTok videos, advertisements on public transport, and grassroots activities.

During the Covid-19 pandemic, there were plenty of creative science engagement methods,

including Covid Chronicles, a series of local educational cartoon illustrations published by the NUS Yong Loo Lin School of Medicine to educate the public about the virus.

Using thought-provoking questions in publicity material, such as "Will AI displace my job?", can get people curious.

At the national level, we can encourage citizens to make use of public consultations and notice boards hosted by Reach to access information. This will help create awareness for citizens from all walks of life on the schedule of consultation events taking place. Currently, invitations are sent out through subscription e-mails and social media feeds.

WE HAVE A ROLE TO PLAY

These suggestions apply to other public consultations such as those on climate and food science. For example, no one wants to be affected by flash floods during the monsoon season, or consume insects without knowing that they are completely harmless.

Yet, how many of us have participated in consultations when the Government solicits opinions on how we should use new technologies to enhance climate and food resilience?

Historically, major socio-economic trends have been

driven by new technologies.

Think electricity, gunpowder, antibiotics, vaccines, the internet and many more. Technology has a far greater impact on our lives than we realise, and will play an increasingly crucial role as the world grapples with multi-dimensional challenges posed by climate change and an ageing society.

The decisions on what technologies are used and how they are employed can be more effective if they are based on feedback from the broad segment of society. This will also dispel fears that science policies fail to prioritise societal interests.

Organisers must also ensure that citizens' inputs are properly understood and that participants see the value in these feedback exercises. While this is no easy task, I am optimistic that we can draw on best practices from other public dialogues, like Our SG Conversation, and continuously improve the process.

I hope to see more Singaporeans joining me in future public science consultations.

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