SynBio Communication Strategies

Research on public audiences' views on synthetic biology, though limited, suggests that many public engagement strategies that have been useful when applied to other areas of controversy may also apply to conversations about synthetic biology.

Public engagement with science focuses conversations on mutual learning, providing opportunities to explore the benefits and risks of a technology, to ask questions, and to hear others' views on the topic. The goal of the building with biology activities is to avoid communication roadblocks that may start conversations on the wrong foot or predispose someone to make assumptions about the societal issues for discussion. The activities are structured to provide a respectful opportunity for exploration of synthetic biology.

General risk communication principles apply to communication about synthetic biology:

- Trust in the messenger (you) is more important than trust in the message. Trust can be cultivated through shared characteristics or experiences, but also by conveying expertise. Your identity as a scientist in the field helps in this respect.

- Scientists as messengers can engender trust by coming across as a compassionate expert. First and foremost, appear human! Show a bit of your personality, share stories from your perspective that convey empathy ("I hear what you're saying. I worried about that too. What I've seen is…").

- Be transparent. Share your scientific process when asked, answer questions in a clear but concise manner, and explain the various safeguards – as well as concerns – you encounter.

In particular, balancing discussion of risks and benefits of any application is important, and the ways in which the science you do is embedded within a larger framework of other actors should also be explained:

- Many of the event activities start with a specific application of synthetic biology, rather than a general introduction of the field. This helps focus conversations on tradeoffs between risks and benefits.

- Concerns about risks are focused primarily on unforeseen, unintended consequences that could result both in the short-term and for future generations. Risks should be discussed without minimization, as well as the processes in place to control those risks. This includes describing the role of different entities such as universities, NGOs, government agencies, and public voices in the development process. Existing regulations (including university ethics systems) in place that apply to these novel technologies should also be discussed.

- Analogies or metaphors referencing ‘software,’ ‘computing,’ ‘machines,’ and ‘circuits’ were generally viewed positively in a public survey. Analogies using the phrases ‘biobricks,’ ‘living foundry,’ or ‘Legos’ caused more negative reactions, presumably because they frame the topic in ways that suggest a shift in the role of humans relative to the natural world.

- Providing a timeline for development of the applications is helpful as context. Many people assume the applications are happening imminently and thus have fewer safeguards or opportunities for discussion.

When applications are discussed, the public tends to shift to cautious optimism about what the field can do to benefit society. This suggests that the application frame promotes more openness to conversations about synthetic biology than focusing just on the technology itself. Different applications have shown (in a small set of studies) different responses.

- Medical applications that might improve human health and reduce costs tend to promote the most positive responses.

- Environmental applications are viewed positively for their benefits, but more concerns about unintended consequences are cited.

- Agricultural applications generate the most concern because they either are ingested by humans or they are seen as unnecessary.

- Applications that involve altering the DNA of animals provoke deep concern, including questions about unintended consequences or slippery slope arguments leading to the alteration of human DNA.

- Applications where the modified organism is associated with negative health or environmental impacts (e.g., E. coli) need a more nuanced discussion of application, containment, and associated risks.

For more information on synthetic biology communication strategies, see the Wilson Center's focus group research and their Guide for Communicating Synthetic Biology.