

COSY: Communicating Synthetic Biology

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Description:

Synthetic Biology (SB) is an important emerging field applying an engineering perspective to biology, which is gaining prominence mainly in the US. In Europe, attention is on the rise, but there was little communication about SB to the public. This is expected to change, which will provide an opportunity to study communication processes such as framing and knowledge transformation.

For cutting-edge areas of research such as modern biotechnology, targeted communication is paramount. For various reasons, scientists are increasingly obliged to address the public, and journalists try to entice lay people for such news. Covering science is, however, notoriously difficult as scientific findings themselves are complex and rarely very interesting to a broader public. This is true especially in the phase of basic research, as long as specific applications have not yet arisen. Once possible applications emerge, however, risks and benefits and their social and moral implications capture a lay public's attention more easily. Coverage therefore has to simplify the underlying facts, while the context becomes paramount. To make 'a story', scientists and journalists transform and socially embed science news, tune them to societal beliefs and world-views and relate them to popular images. The journalistic practice of verifying is tied to a space of reference, which is not objective in general terms – it is valid only in a narrow frame of conventions and a traditionalized consent. The public take up the reports and emulate the content along the lines of everyday knowledge, resulting in what is being called vernacular communicative science knowledge. The results are often erratic; empirically, innovations from modern biotechnology have received very different responses in the public, ranging from applause for new drugs to rejection of modified crops.

The reason for this is not only a lack of factual knowledge about complex new findings, as we often hear. For example, recent studies have shown that insights from post-genomic biology often collide with long-held beliefs about the role of genes. Lay people must symbolically cope with such new insights using everyday knowledge; a result is, for example, that they often link genetic modification with monstrosity.

Thus, simple linear models implying that information is conveyed without being related to previously held beliefs fall short of adequately representing processes in science communication. No wonder, exercises in Public Understanding of Science aiming at linearly conveying factual knowledge to a lay public in order to improve acceptance have largely failed. The reason, among others, is that they did not take into account communication dynamics, knowledge transformation and, in particular, framing processes. "The framing of news can be understood as the process through which complex issues are given shape along journalistically manageable dimensions, resulting in a particular focus on an issue". Instead of

a one-way differentiation between “reality” and “media-reality” as well as defining their relationship in the sense of true or false imaging, one should pay attention to the construction processes and empirical conditioning, respectively.

Presently, there is no “best practice” to introduce new scientific fields in a way that enables really differentiated views in the general public. The problem is thus to devise a comprehensive approach to study how new scientific findings expected to lead to a new, or fit into an existing, public debate get framed and transformed during different steps of communication.

It is not clear whether or not synthetic biology is essentially new from an academic point of view; however, this appears to be of less importance compared to the framing SB acquires in discourse. Thus, the advent of SB provides a living communication experiment: a new field that carries many features prone to, but not yet determined by value judgements provides an opportunity to study mechanisms of how to cope with new scientific insights.

We propose to combine different approaches and to study communication processes in real time, in a quasi-experimental way, taking the new field of SB as an example. We will study the ‘chain of communication’ in three steps:

1. We will ask volunteering scientists to write press releases, which will be taken up by Austrian journalists from different segments (quality press, radio) to report on aspects of SB.
2. In an experimental confrontation, small groups of lay people from various ‘publics’ (e.g. different educational status, age, professions) will be confronted with the coverage, discuss and summarise it and fill in a questionnaire. This will enable us to study knowledge transformation and framing processes.
3. Journalists and scientists will be confronted with the products of the downstream level, respectively. The various outputs will be analysed and their discursive structures compared.

Apart from this experimental investigation into knowledge transformation, we will have a close look at the upcoming discourse on SB by identifying players and analysing central topics. To this aim, we will interview scientists and administrators and hold in-depth discussions on specific issues. We will further monitor and analyse key media. Over the whole project, gender aspects will particularly be taken into consideration. Active networking with the SB community and dissemination activities will complete our activities.

COSY aims at assessing

- how the new scientific field of Synthetic Biology (SB) is introduced in public discourse;
- what happens when scientific findings about SB become news stories; how technological innovation gets covered and transformed in communication;
- what information recipients consider relevant to form an opinion on a new and unknown issue that holds the potential to disrupt long-held beliefs;
- how a discourse emerges among scientists, regulators, mediators and in special publics; how the issue gets framed and defined in different settings and what is considered a risk or a benefit;
- how other issues of modern biotechnology have been covered in the media in comparison, and what is specific to SB;
- how gender implications of SB are discussed and perceived in context.
- how principles of knowledge transformation can be applied to forge a realistic discourse between science and society.