

Summary of the

World Café

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1. Introduction

The second day of the EUROSYNBIO meeting (25-27 May 2011) was dedicated to a so-called World Café¹, a participative discussion setting. In our World Café the following questions were discussed:

- What are possible societal issues in the EUROSYNBIO projects that need closer attention?
- How do you want to communicate your work and insights as synthetic biologists to a broader public?

The discussion event started with an introduction explaining the objectives and discussion rules of the World Café. The central objectives of the discussions were:

- Lively exchange of thoughts across projects of EUROSYNBIO
- Communication with known as well as with new peers
- Exploring societal aspects and science communication aspects
- Generating ideas for future activities or projects

For the discussions, tables for four participants each were set up, including one person that served as table host. All together there were 32 EUROSYNBIO researchers at eight tables participating in the World Café. A total of three sessions á 30 minutes were held (23 minutes of discussion and 7 minutes break). In the break the participants were invited to change to another table, while the table host had the task to stay at the table and report the central aspects of the previous discussion to the new table guests. Each table had an empty poster, on which participants could visualise and record the ideas coming up in the discussion. After the third session the table hosts presented all the posters and reported the key findings of the discussion.



¹ An informative Website about World Cafés can be found at: www.theworldcafe.com.

For a comparison with other participatory methods and for a detailed description, see: Steyaert, Stef & Lisoir, Hervé (2006) *Participatory Methods Toolkit. A Practitioner's Manual*. King Baudouin Foundation and Flemish Institute for Science and Technology Assessment
Download (June 6 2011) at: http://www.kbs-frb.be/uploadedFiles/KBS-FRB/Files/EN/PUB_1540_Participatoty_toolkit_New_edition.pdf

2. World Café Results

For analysis of the results the final presentations of the table hosts were recorded and the posters were collected. In a short content analysis, the presentations were paraphrased and the content structured within the categories of (a) societal issues and (b) science communication. Within the two topics, related arguments were put together and shaped into a story line. The following chapters summarize the discussion among the scientists.



2.1. Societal Issues

2.1.1. What is synthetic biology?

Before synthetic biology is discussed there should be a clearer definition of what it actually is. At the moment everyone in the field would give a different definition. Definitions can range from Craig Venter's ideas (this could also be termed "turbo-charged" recombinant DNA technology) to more sophisticated breeding experiments. However, there is the danger that everything negative that is associated with biotechnological research is labelled with the umbrella term synthetic biology.

2.1.2. Diffuse fears of the unknown

The human design of lifelike chemical entities can meet a lot of paranoia and diffuse fears of the unknown. Therefore it is essential to have a more concrete view of synthetic biology before entering the public discussion. The creation of artificial life can also be frightening for people due to a lack of education in the field and processes of biology.

In general, every time a new technology appears like for instance a new genetic method or design of minimal cells it is always connected with fears of negative consequences or of harming people.

Another aspect of this is the fact that if taxpayers do not know what is done with their money public funding for science will cease. There is a vicious circle between public funding and the taxpayer's ignorance because politicians will regulate funding much to fulfil the desires of the voters.

2.1.3. Fears and benefits and the role of the scientists

On the one hand the fear exists that genetic engineering is harmful for human health, on the other hand there is the hope for benefits from scientific research. There seems to be a gap between the high expectations of the public and what science can really achieve. There is a difference between everyday basic research and the ability of saving the world or finding new kinds of medication. In connection with the exaggerated promises of genetic engineering, for instance to find a cure for cancer, the question might come up: "Do we save the world or just our funding?"

Why then do biologists do their research? They want to save mankind by saving energy (environmentally efficient) and by saving money (economically efficient). This involves some sort of self sacrifice: "I have no life so other people can have one."

Furthermore, by mimicking nature scientists run the risk of being perceived as playing God. It is important to be aware that wherever there are great opportunities there are also great dangers.

Therefore, scientists should self-reflect if what they do is really necessary, if it makes sense what they do. There should be some kind of self limitation, too.

Maybe it is part of the scientists' arrogance to declare the public as being ignorant, due to the fear of "the public being against us".

However, considering the dangers of existing technologies, as for instance the global effects of the use of the internal combustion engine, the question must be posed: What are new dangers of synthetic biology. This can be answered with aspects of replication and evolution which leads back to the question: What is life?

2.1.4. Is nature good or bad: a philosophical debate

The mistakes made in the green biotech discussion in Germany which led to a widespread public opposition should be avoided for synthetic biology.

In Germany nature is regarded as something good and alterations of natural things like food or animals should be avoided. Manipulating nature produces negative reactions in such a society. It seems to be necessary to involve philosophers in a debate whether nature is good or bad and if it should be manipulated or improved by humans. This question seems to be topical in the face of so many catastrophes.

2.1.5. Cultural differences in societal issues

The example of Germany shows that there are cultural differences regarding societal issues. These can already be discussed in the labs making use of the high level of intercultural exchange in biological research. This can help to overcome "ethical fears" against new developments in the field.

2.1.6. Just distribution in developing countries

Finally, an important societal issue is the availability of new technologies such as synthetic biology, for developing countries.

2.2. Science Communication

2.2.1. The importance of communication

Communication is considered important for several reasons:

- To bridge the knowledge gap between the scientific community and the public
- To inform people about the spending of their taxes to guarantee future funding
- To take away irrational fears



2.2.2. Important aspects of communication

Communication has to be unbiased. However, there should be an emphasis on positive aspects and benefits for the society. Furthermore different cultural and religious backgrounds of the people who are addressed must be taken into account.

2.2.3. Ways of reaching the public

People who have no need for prestige or financial support, like for instance Nobel Price winners could communicate and promote science in an unbiased way.

An essential contribution for propagating synthetic biology are diverse school outreach programmes, where high school students are welcomed at University institutes and where they can do some simple experiments for themselves. For example, fish samples from sushi restaurants were analysed by students using simple DNA preparation methods, making it possible to find out what kind of fish had been actually sold (in many cases, the fish were not the the ones that were marketed). This kind of school outreach programmes should be organized on a larger scale, maybe involving PhD students for the organization of the experiments.

Another important way to improve science communication is to improve the quality of science journalism. In Switzerland for instance, grants are given for good science journalism. This can help to avoid sensationalism and foster objective articles. PR departments at universities or even institutes can propagate science in a more emotional way, also to reach the hearts of the people. This includes the communication of basic science as well.

Furthermore, there should be incentives for scientists who popularize their work themselves instead of just publishing in scientific journals. Usually scientists publish their work in scientific journals and share their knowledge with colleagues. There is no incentive for scientists to communicate their work in normal magazines or newspapers and scientists also do not think that they have the responsibility to communicate their science to the public in an understandable way.

For helping to understand the concepts of biology metaphors can be used: LEGO pieces for an antibiotic plate, earrings, or North and South

Korea for cell division etc.

Being open towards the public can also be implemented by offering open days at institutes inviting interested people, schools and students to promote the ideas of the scientists and to bring science and society together.

2.2.4. Communicating via internet and other media

For the communication between scientists, and between scientists and society, the internet plays an important role. Discussion forums about synthetic biology and the use of Google, together with a set of good links and keywords (for instance synthetic biology) that guarantee a high ranking in the search engines, would be helpful for communication, so that people who are interested in the topic can easily reach it. This can be supported by good Wikipedia pages.

The internet and other mass media as for example TV can help to communicate methods and strategies of the researchers as well as the benefits for the society, for instance the possible treatment of diseases, using emotional arguments and positive cases.



2.2.5. Modern and unconventional ways of communicating science

Usually open house events or scientific articles attract only people who are already interested in science. But how can other audiences be reached? There should be a more modern, popular way of reaching people who usually have no contact with science, like for instance scientific rock stars.

A TV soap on scientists could transport what biologists really do, because many people watch TV. Furthermore the design of a “SynBio iPod” would be another idea of addressing the public.

It should be the role of artists and moviemakers to communicate science as something cool.

These people are the icons that are able to achieve this instead of the scientists who cannot do that.

It needs “beautiful” or charismatic people to communicate science to a broader audience. A TV documentary, for instance on the TV channel ARTE could be produced that explains science.

For this purpose the documentary should start with describing a number of simpler and easily understandable projects. There could also be a talk-show or a similar discussion setting to involve pro, contra and neutral arguments

2.2.6. Involve stakeholders to improve communication and propagation of science

People consider science as something boring. If people are involved in the communication process who are affected by positive outcomes of research, for instance patients who can get cured by new drugs, this

would improve the efficiency of communicating and of propagating science.

2.2.7. Change in science education

Finally, biology education should be improved, emphasizing the role of quantitative aspects of the science and also bringing students closer to engineering.



Limitations

When reading these results a few limitations have to be taken into account. Firstly, the single discussions at the tables were not recorded to guarantee a free exchange of thoughts and a relaxed atmosphere. However, a good deal of information on the process of the discussion and some occurring ideas are therefore lost. Nevertheless, the posters and the table host's reports guarantee that the key messages are recorded.

During the whole communication setting, the information is affected by two subjective interpretation processes: first that of the table hosts, second that of the collection and analysis of the results.

Finally, the results have to be seen as a qualitative collection of ideas, to inspire further discussions and activities, not as a predominant opinion that is representative for the participating community.