

## **Report**

### **Communication of science**

Communication of science can often be too complex for the receiving party or too simplified for the scientists involved in the given field. There is a lot of misinformation, oversimplifications and false statements in the public domain. This difficulty in communicating aspects of science to people that do not have a background in the subject is not just relevant to biology but pervades all sciences and other disciplines that need specialised knowledge and jargon.

Use of metaphor can be useful but misleading at the same time. When scientific information is made for public consumption it very rarely has all the details, usually for good reason. The levels of knowledge information is aimed at should be very clear in the heads of the people portraying that information. It should be made clear when information is left out to simplify the subject.

Of course, there can still always be misinterpretations. What is appropriate in these situations is an ongoing question that, I believe, needs to be continually revisited. Terminology such as 'protein' and 'DNA' are used in very different ways depending on the context. In my experience, it can frustrate and annoy scientists a lot to know how wrong the perceptions of some terms can be.

### **Ways of thinking**

When analysing the process of changing the way we think about things one should take several things into account. The concept of self and other is key. The awareness of one's own identity, one's own perception, other's perceptions of you and the context one is in all contribute. If you question the way you think you question your identity, if you question your identity your identity can grow and change much more easily. Throughout my iGEM experience the team has been encouraged in various ways to question themselves, their identity, the identity of the team and of iGEM itself. This branding and its perception is all included in a well thought out analysis in human practice.

Self-reflection can so easily be underestimated as a tool. When one gets in the habit of reflecting on them self and on their surroundings it opens the doors possibilities, possibilities of successful collaboration, of creativity and of getting more out of every situation.

Ethics will always be relevant in science. I have purposefully not focused on it but it relates directly to self-reflection. Individuals in the team talked about the relevance of ethics at different points of research. When you are starting a project you often don't think beyond the lab but as it develops ethics and other people become more relevant until it can be trialled, when ethics comes to the

forefront. It is understandable that many researchers simply worry about funding if they are doing what they want. It comes down to motivations.

As I have discussed in the future applications page open sourcing is seen as positive but often unrealistic. Funding and politics has an impact on such things

Finally I will leave you with an analysis of my time within the group

Coming into the team part way through the project created an interesting situation for me. I'm not a biologist, I'm not an engineer, I'm not a computer scientist, I'm a designer, the 'creative' one. It is a little difficult for a designer to not be involved in the creation of a project, leaving it to the 'academics'. My first reaction was that I wished to be there at the start, to be involved in the brainstorming, the production of ideas. Maybe there is a touch of arrogance in thinking that I would have played an integral role in deciding on a 'good' idea and, therefore, a 'good' project would come from it. Maybe my lack of biological knowledge would have helped, maybe it would have hindered my ability to make viable decisions. I will never know.

Luckily, the team was a really nice bunch of people that communicate in a forthright way and are willing to question what I say. For me this makes all the difference, two fold. Firstly, trying to integrate into a group that is already reasonably established can be difficult. If one is able to communicate openly that transition becomes a lot smoother. There is less of a sense feeling like the outsider. Secondly, in being able to communicate with a group of confident people that are willing express themselves and question me, it allows me to act in a similar manner. I can question why they do things and how they think about those things.

One of the first things I asked was how the team thought I could benefit the project. Predictably, the first response was essentially to make things look 'pretty'. I smiled at this and asked if there was anything else I could do. To my relief the 'human aspects' subject came up, the idea that I could help with the connection between scientists and the 'general public'. As my previous design work has been focused on public engagement this suited me.

One of the reasons, I believe, a designer was asked to be involved was because of the success of previous iGEM competitors that had involved designers or artists in their projects. The appeal of me being embedded in the team rather than popping in and out seemed to be the possibility of having an influence all the way through the project which could have an effect of the group approaching aspects of the project in different ways, enlarging the possibilities of innovation and, therefore, success.

One of the things I've struggled to be clear about is how embedded in the biology to be. I could have focused on being in the lab more to get to know the

processes involved in doing synthetic biology. However, I found myself wanting to strike a balance between inside and out to allow myself to be involved in conversations, asking questions, getting to know the team while being able to question decisions objectively, see the dynamics of the group and see different aspects of the project from the perspective of someone outside a synthetic biology environment. This concern about what would be best for the team and what would be best for me as a designer and analyser was something that I was constantly aware of. I tried to be involved enough to understand what was going on around me while not being so engulfed to enable some objectivity.

Below is a list of further things discussed or at least contemplated.

Getting told to 'ask the tough questions'

Bridges, communication, between and over, boundaries

My own identity

Chats – colours, geekiness, how would we label ourselves,

Doing human aspects in a way that seems like you're not

Getting them to question themselves about their individual views of ethics

Getting them to write about their own experience within the team

Perception of everyone's role

Supervisors' roles

Advisor's role

Names of positions within team, activities associated with those labels

Sleep over, sports days,

Illuminati – a secret society, does the situation feel like that?, why are certain decisions being made?

What is within human aspects? Identity, branding etc etc etc...everything

Defining terms for distribution

Competition as down side

Keeping info to self, protectiveness of ideas

Maybe compulsory collaboration would help

Mexico

Emma and Jane's talk

Imperial college not putting anything on wiki or turning up to UK meeting in Newcastle

How we got here

Importance of teachers

If you start these guys on a subject they can just keep going and I can just listen

Please contact me at [contradictory@hotmail.co.uk](mailto:contradictory@hotmail.co.uk) for any information about my perspectives of human practices and iGEM.

Thank you for a wonderful experience.