



PTAS Project Report (for REGULAR PROJECT GRANTS)

Project Title: Design-thinking frameworks for future-directing bio-innovation

Project type (delete as appropriate) :

B Innovation Project (introduction and evaluation of an educational innovation, usually taking a practical approach)

Principal Investigator : Naomi Nakayama

Schools/department: Royal Society University Research Fellow, School of Biological Sciences

Team members (including Schools and Departments):

Larissa Pschetz, School of Design, Edinburgh College of Art and

Elise Cachat, Institute of Quantitative Biology, Biochemistry and Biotechnology School of Biological Sciences

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Project teams must submit a report within 4 months of the conclusion of their project.

Copies of dissemination material (eg journals/newsletter articles, conference papers, posters should be listed and attached (separate to the word count). The brief report will be published on the IAD web pages.

Report (maximum 1500 words)

What did you do? The bulk of the funds were used to organise a 3-day long masterclass where we tested different methods to teach Biodesign to interdisciplinary teams. Students who participated in this masterclass went through a competitive selection process, and were chosen based on their enthusiasm for the subject and for interdisciplinary work. Half of them came from arts, design and related fields of study and the other half from traditional sciences. The funds were mostly used for materials, venue and to sponsor the travel of some students, as well as a few tutors, to Edinburgh.

The 4 methods we explored in the masterclass focused on exploring ideas through: a) material metaphors, b) biological discoveries, c) biodesign narratives and d) pros and cons of different biodesign approaches.

Students were teamed up in pairs, and explored the different methods with the aim to come up with a biodesign innovation at the end of the process.

What did you find out? In the feedback forms, students have highly praised the exploration of living organisms through material metaphors (praised mostly as a way to open up space for creativity) while different students reported preference for one or another of the other methods. Many also reported having wanted to spend more time in the lab. This helped us to understand the central role of materiality in teaching biodesign and the need for a mixed method approach to integrate students from different disciplines.



How did you disseminate your findings? The involved tutors have posted insights via Twitter. We have also invited lecturers and students across the UK to attend the masterclass, have returned to their institutions and continued to explore the methods in their own work.

What have been the benefits to student learning? For some students, this was the first time that they:

- have explored design methods,
- have adopted a more hands on approach to biodesign
- have worked in interdisciplinary teams.

Students from both sides (arts & design and sciences) have recognised the need to find new ways to communicate their knowledge when working in these teams.

How could these benefits be extended to other parts of the university? The learning could be applied to other interdisciplinary courses and courses that span across schools (e.g. at EFI)

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