ART AND DESIGN

OTHER MEANS

RESEARCH, METHODS AND PRACTICES

31 AUGUST 2016
MUSEU DEL DISSENY DE BARCELONA

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EXPLORING INTERDISCIPLINARY RESEARCH AND COLLABORATION

In recent years, there has been increasing interest in research in art and design, both inside and outside academia. Traditionally associated with highly practical craftsmanship, the focus in research into art and design has brought about new interest in methodological and epistemological questions that could benefit the development of the fields in both universities and the professional world. The transformation and inclusion of schools of art and design in universities aimed at producing research outputs has created new horizons to be explored. But this rapid, ongoing evolution needs new tools and frameworks to endow us with the new skills required. It also needs to keep the focus on practices while at the same time adding a great amount of self-reflection and methodology to the processes involved.

In this sense, collaboration with other disciplines with an older or stronger tradition of research practices and methodologies could be a key aspect in improving the field. This may imply joint but separate epistemic and design/art work, or a mutual blended transformation into transdisciplinary processes. There is a myriad of forms and types of collaboration to be explored while researching within hybrid contexts.

On the one hand, there is an ever greater tendency for art and design research to establish and enhance its links with science and technology studies (STS). This has happened for a variety of methodological and epistemological reasons. On the other hand, although STS were born within the social sciences, they have extended their field of action to other disciplinary and interdisciplinary areas related to the arts and humanities. In fact, art and design share a mutual approach with STS that is beneficial for both sides, considering their drive to transform and to be transformed.

The purpose of the meeting organized by the **UOC-Telefónica Chair in Design and Multimedia Creation** that took place on 31 August 2016 at the **Museu del Disseny de Barcelona** was to explore this mutual approach from the multiple perspectives of those involved. It was also an opportunity to exchange practices and experiences between the researchers undertaking their work in the local context and those that had come to Barcelona to present their ongoing investigations at the **4S/EASST Conference,** organized by the two foremost international STS societies. The Conference took place in Barcelona between 31 August and 3 September, 2016.

Apart from the aim of creating a forum for the exchange of experiences, a main objective of the session was to become a space for joint reflection on the research processes, methodologies and practices that have emerged in this shared territory between art, design and STS. The hope was also to establish networks that would contribute to the strengthening of this increasing connection. In this sense, it has indeed served to foster a more productive and fertile interconnection, one that needed to be explored more thoroughly and deeply. Aligned with the 4S/EASST Conference's proposal to explore projects and spaces where science and technology were performed divergently, this session tried to address and discuss potential frameworks for studying the diversity of creative practices, respecting their dispersion and their otherness, while at the same time recognizing them as such. We were moving in hybrid territories that fostered connections between the creative local scene and international research, as well as different knowledge-sharing formats. These connections could help address the cross-cutting issues involved through concrete practices.

The meeting was split into a pecha-kucha set comprising 8 presentations and a round table discussion. **Ignacio Farias,** assistant professor at the Munich Center for Technology in Society, opened the first pecha-kucha session. His presentation focused on the need to expand our understanding of "design" while at the same time drawing the borders between it and other disciplines and epistemic zones. How can spaces of "co-laboration" (Jörg Niewöhner) be generated in which participants can be modified, irritated, pushed to slow down and learn from one another? Farias addressed this provocative question by exposing his pedagogical experiments with students that took place at the nexus of STS and architecture.

Irene Lapuente, founder and director of the La Mandarina de Newton, followed Farias. She stated that she was not a designer, nor an artist, but a physicist. She addressed the subject of transdisciplinarity and that exploring transdisciplinarity was therefore "natural". Accordingly, her research practice has involved collaborations with heterogeneous collectives and researchers. She presented Science of the City, one of the main projects led by her company, in which the aim was to take science and technology out of the lab environment and turn citizens into active tech and science communicators.

Artist and researcher **Joana Moll**, whose work is focused on the Internet, in particular its infrastructure and materiality, presented two projects that reflect on the materiality of the Net and its consequences for the environment by displaying in different forms the amount of CO_2 emitted by Google in real time.

Enric Senabre, co-founder of the crowdfunding platform GOTEO (www.goteo.org) and researcher on digital commons and collaborative economy from the Universitat Oberta de Catalunya's IN3 research group Dimmons.net, followed Moll. He addressed questions related with methodologies and collaborative research. Based on his experience, he shared some lessons learned: the process for collaborative research/creation, making the implicit explicit, making people engage and discuss and combining classical analogue tools with digital or software tools.

Katrina Jungnickel, lecturer at the Department of Sociology at Goldsmiths, University of London, presented one of her recent research projects, Bikes and Bloomers, which focuses on the changing social space in 19th-century Britain through the exploration of women's convertible cyclewear.

Learning environment designer and educational researcher, **Susanna Tesconi**, shared design principles for learning environments for teacher education in "making". Making can be an emergent inquiry-based educative practice that can help to change a learner's mentality from that of a user or consumer to that of a creator. For her, learning happens when we are living an experience, expressing ourselves and building artefacts in a context shared with others.

Nina Wakeford, reader in Visual Sociology at Goldsmiths, University of London, was the last speaker in the first part of the pecha-kucha, after the vermouth break. Her performance-presentation dealt with the mutual enrichment relations between feminist STS and artistic research. Wakeford proposed the notion of "inventiveness" to function as a common space between the two fields. In her presentation, Wakeford dealt with the question of doing an STS that also allowed desire and affects. A thought-provoking way of addressing "time drag" from a feminist perspective was also introduced in her talk.

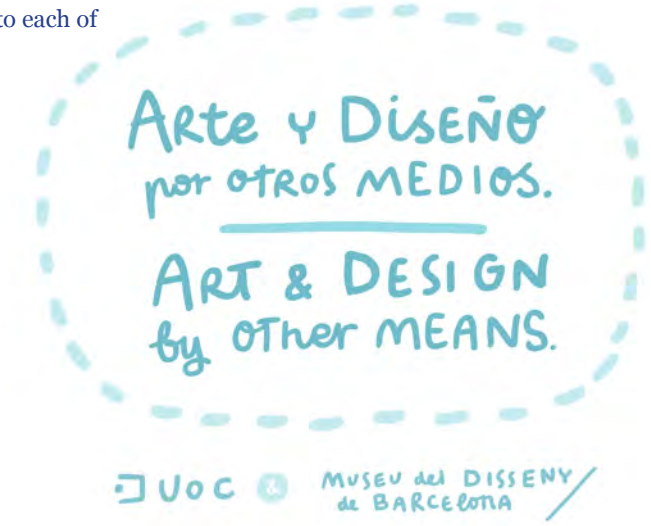
Tim Choy, Associate Professor of Science & Technology Studies and Anthropology, University of California, Davis, focused on the relationship between these fields of knowledge and the practice of drawing, in which "art

sometimes get caught". Neither an artist nor a designer, Choy is particularly interested in what drawing as a practice might offer as a method for ethnographic or conceptual making. Choy has been using drawing as a way to address several concepts related to the act of breathing and "the potential and challenges of figuring shared conditions (always unequal) of living in atmospheric suspension." He refers to this situation with the word "conspiracy", understood as "breathing together".

Reader in Sociology at Goldsmiths, University of London, and Director of the Centre for Invention and Social Process, **Michael Guggenheim** discussed thinking, method and how speculation as a method is, sometimes, more useful than disciplinary ones. He presented an ethnographic research project about emergency situations and food. The project produced emergency scenarios in a workshop in which people were invited to imagine disasters, which were then turned into dishes that responded to them, creating, exploring and reflecting on particular social situations.
Bani Brusadin, independent curator and researcher, presented The Influencers, a festival about unconventional forms of art and communication that he co-directs, where speakers are invited to showcase their experiments in art and communication.

The last pecha-kucha presentation was conducted by **Liliana Ovalle**, designer and researcher at the Interaction Research Studio (IRS) at Goldsmiths, University of London. She presented the project Energy Babble, an automated talk-radio focusing on issues related to energy and the environment being developed at the IRS. Ovalle stressed that the IRS is interested in pursuing design not only as a problem-solving mechanism, but also as a way of encouraging playfulness. Most of their projects are designed for specific contexts.

After the pecha-kucha, a round table moderated by **Pau Alsina** allowed some thought-provoking discussion that addressed the meeting's driving question: What can STS do for art, and what can art do for STS? **Dehlia Hannah, Deborah Lanzeni, Alex Wilkie** and **Amanda Windle** were invited to reflect on the question put forth and responded to the proposals exposed by the previous speakers. Hannah, curator and philosopher of science and aesthetic theory, focused on the "ongoing tension between utility and playfulness" in art and design and the need to generate productive encounters outside of comfort zones so that art/design and STS can find common spaces of intervention. Anthropologist Deborah Lanzeni underlined in her presentation the need to reflect on methods and challenge the very principle of the meeting, asking the audience why even carry out research into the connection between art/design and STS? Alex Wilkie, Director of the Centre for Invention and Social Process at the Department of Design at Goldsmiths, University of London, expressed a few of the concerns he had detected in the pecha-kucha presentations: how to deal with practices that involve invention rather than innovation, and how to allow invention without manipulating it into becoming a method. Here the "methods" issue appeared again. Finally, Amanda Windle, Head of the DigiLab at London College of Communication, asked direct questions to each of the speakers.



We are happy with the results, shown here in the following pages, as well as the reflections, insights and connections produced during the event. The mood was one of sharing, bright and comfortable, and open to otherness while pushing forward the limits of each field. We believe that this should be the first of many such regular events in order to better develop and deepen research in the art and design fields. Let this be a starting point from which we move ever forward towards other means to be explored.

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PECHA-KUCHA SESSION 1

VIDEO: Ignacio Farias
https://youtu.be/ltqpwnIqTLY

ECOLOGIES OF IDIOCY

The focus of **Ignacio Farias's**[1] presentation was on the issues related to boundary-making between disciplines. As an assistant professor at the Munich Center for Technology in Society and the Department of Architecture of the Technical University of Munich, he has first-hand experience with the problems that stem from assigning professorships to very constrained areas of knowledge. "The one I was given", stated Farias, "was announced as Participatory Technology Design, but when I joined the faculty I began the long, bureaucratic process of changing the name... After extensive discussions, we renamed the whole thing Infrastructure, Design and Participation, as this covered my main areas of research." However, the dean of studies took issue with the use of the word "Design" in the name, given that Farias was not a designer. Despite the organization's highly interdisciplinary nature, professors at the University were usually considered to focus either on design, technology, theory or urbanism. "Design is restricted to those who engage in a purer type of exploration of building forms", concluded Farias, sharing this anecdote, not to criticize his architecture colleagues, but to point out that there is a need to expand our understanding of design, while also considering concerns raised by architects about what could be too broad a definition of design. This must also be considered in terms of collaborations between STS scholars, designers and artists, and what it means for the types of collaborations that can be expected must be looked at.

Moving on, Farias discussed the concept of **co-laboration**[2], introduced by anthropologist Jörg Niewöhner: "co-laboration as involving joint but separate epistemic and design work." This implies working on highly entangled projects while not necessarily sharing the same set of goals. To think about STS and design projects as co-laborations is to think about them as multiplicities enacted in fundamentally different ways by the different co-laborators involved. "The aim of this joint but separate design or epistemic work", stated Farias, "could be something like

constructing ecologies of idiocy." These "ecologies of idiocy" configure spaces in which participants can be irritated by, held back by and eventually learn from each other. Following this approach, Farias has participated in several projects with the aim of constructing co-laborative spaces at the STS–architecture nexus.

Among these projects, he described a number of pedagogical experiments with architecture students in which the client-architect relationship was explored. "In these experiments, we did not pretend to be co-designers but rather acted as STS scholars," continued Farias, "playing the role of a crazy client that doesn't really understand the problems attached to his or her demands, but who has a very clear understanding of what he or she wants." The aim was not to train architecture students in STS, but rather to come to them with STS questions and try to bring about a wide-ranging process of translating these questions into things. Using the idea of the **Parliament of Things,**[3] a theory introduced by anthropologist Bruno Latour, they asked stu-

1. Prof. Ignacio Farias Hurtado, PhD. Retrieved from: https://www.mcts.tum.de/personen/professuren/ignacio-farias/

2. Jörg Niewöhner (2015). "Epigenetics: localizing biology through co-laboration, New Genetics and Society", 34:2, 219-242, DOI: 10.1080/14636778. 2015. 1036154. Retrieved from: http://www.tandfonline.com/doi/pdf/10.1080/14636778.2015.1036154

3. Latour, Bruno (1993). *We Have Never Been Modern*. Harvard University Press. p. iv. ISBN 978-0-674-94839-6.

dents to design a space for hosting an extremely heterogeneous set of actors involved in a previously established socio-environmental controversy, paying attention to the different claims that these actors had. The task was, therefore, to design a space where the different actors could meet all together, present their claims, work out their differences and eventually reach an agreement. "The result of this experiment was, if not a complete disaster, disappointing at least", confessed Farias. "It was deeply problematic in a number of ways that I cannot enumerate." The experiment did not produce an answer but rather "a very idiotic learning environment for all the people involved, for us and the students." The students could not understand why the researchers were unhappy with everything they proposed and the researchers realized that the way in which they had posed the problem had been deeply flawed. However, the experiment challenged assumptions in productive ways, although without aspiring to produce a common output. Farias concluded his presentation by mentioning his latest projects in **participatory technology design.**[4]

4. Assistant Professorship for Participatory Technology Design. Munich Center for Technology in Society. Retrieved from: http://www.iup.mcts.tum.de/index.php?id=5

TRANSDISCIPLINARY EXPERIENCES

VIDEO: Irene Lapuente
https://youtu.be/9veYNZcMQ3Q

Irene Lapuente, founder and director of **La Mandarina de Newton,**[5] started her presentation by stating that she is not a designer, nor an artist, but a physicist. This opening statement led her to address the subject of transdisciplinarity:

"I think that transdisciplinarity is now very popular," she affirmed, "but in fact it comes from the Big Bang, from the very beginning, because the world has no disciplines; that is something that humans made to understand the world." To Lapuente, exploring transdisciplinarity is therefore "natural". Accordingly, her research has involved collaborations with heterogeneous collectives and researchers. **Science of the City** [6], carried out in Barcelona between 2011 and 2014, is one of the main projects led by her company. "We structured the project as if we were designing new things in the field of science, and the idea was to ask

5. La Mandarina de Newton. Retrieved from: http://www.lamandarinadenewton.com/

6. Science of the City. Retrieved from: http://scienceofthecity.net/

Birdie (2016)

people to share video clips about places where they can find science or technology in their own city." The intention was therefore to take science and technology out of the lab environment and turn citizens into active tech and science communicators. The project also incorporated art, since it eventually became an art exhibition organized by a group of artists. Additionally, a collaboration with scientists facilitated using topics suggested by citizens in research fields in science.

La Mandarina de Newton has also collaborated frequently with performative artists, notably **Agrupación Señor Serrano,**[7] a theatre company whose work spans many disciplines. ***Katastrophe* (2011),**[8] a play about the catastrophes suffered by human civilization over time, exemplifies their approach to art and science by combining performance, theatre, dance and chemical experiments. Lapuente and her company also provided scientific advice to another performance piece, ***L_ENTES* (2012)**[9] . This dance performance by choreographers Iris Heitzinger and Natalia Jiménez plays with science and mathematics to talk about time, space, light, sound and perception. Their latest collaboration with Agrupación Señor Serrano is the play ***Birdie* (2016),**[10] . Although in this play science experiments are not as prevalent as they were in in *Katastrophe*, they are used to improve the narrative, as the whole piece is driven by science and technology. Lapuente also spoke about the collaboration with dancer Àngels Margarit, founder of **Cia. Mudances,**[11] whose dance piece *Back-Bak* (to premiere in December 2016) deals with maths and related concepts such as symmetry and infinity.

In addition to collaborating with artists, La Mandarina de Newton also works with design tools and collaborates with designers, applying design thinking to create new educational materials and exhibitions. **TalentLab**[12] is a co-creation project developed with the Spanish National Research Council (CSIC) in which the company brought together researchers, teachers and designers in an effort to create new educational materials by taking advantage of transdisciplinarity: "the new material was different from what is usually done," stated Lapuente, "because when you work in a field you tend to repeat what has been previously done, but here the output was different because there was a mix of participants from different disciplines." The project lasted over four years and concluded with an exhibition in which all the elements were made by the participants and could be taken away by the visitors, essentially taking the exhibition home. A similar process, but focused on performative art, was carried out in collaboration with the "la Caixa" Foundation. The output, **CaixaEscena Pedagogical Kit,**[13] was a classroom tool kit to be used in teaching dramatic arts subjects. This project involved working with teachers and theatre professionals from different disciplines in each phase of the process. In 2015, Lapuente and her team participated in the **Innovators programme at the NODE Center for Curatorial Studies,**[14] focusing on design tools for participation in the visual arts. All these experiences led to a collaboration with HANGAR to draw up a **Protocol for Interdisciplinary Research**[15] that could serve as in aid in exploring the space between disciplines. "Disciplines are obviously not attached to one another," stated Lapuente, "there are little spaces in between and it is not so clear where they belong. Transdisciplinarity takes us there, by mixing art, science and technology. There are many difficulties in doing that, how you create relationships among people, how you respect each other, how you evaluate it... So it's not easy, but it's a good path to follow." Lapuente concluded her talk with several final remarks on the challenges of interdisciplinary research: "we need to think about ecosystems, we need a lot of ethics, trust, respect and seeing each other as equals. We need commitment, because this is harder than going through the regular path. It also important to mix theory, practical and creative thinking: you can't just do it from one approach. You need open minds, open spaces, and real things. Because if you approach real problems, you get this type of structure. If you work with real people, you need an open perspective."

7. Agrupación Señor Serrano. Retrieved from: http://www.srserrano.com/

8. *Katastrophe*, Agrupación Señor Serrano. Retrieved from: http://www.srserrano.com/index.php/es/producciones/katastrophe

9. *L_ENTES*, Co-creating Cultures. Retrieved from: http://co-creating-cultures.com/eng/?cat=329

10. *Birdie*, Agrupación Señor Serrano. Retrieved from: http://www.srserrano.com/index.php/es/proyectos-en-curso/birdie

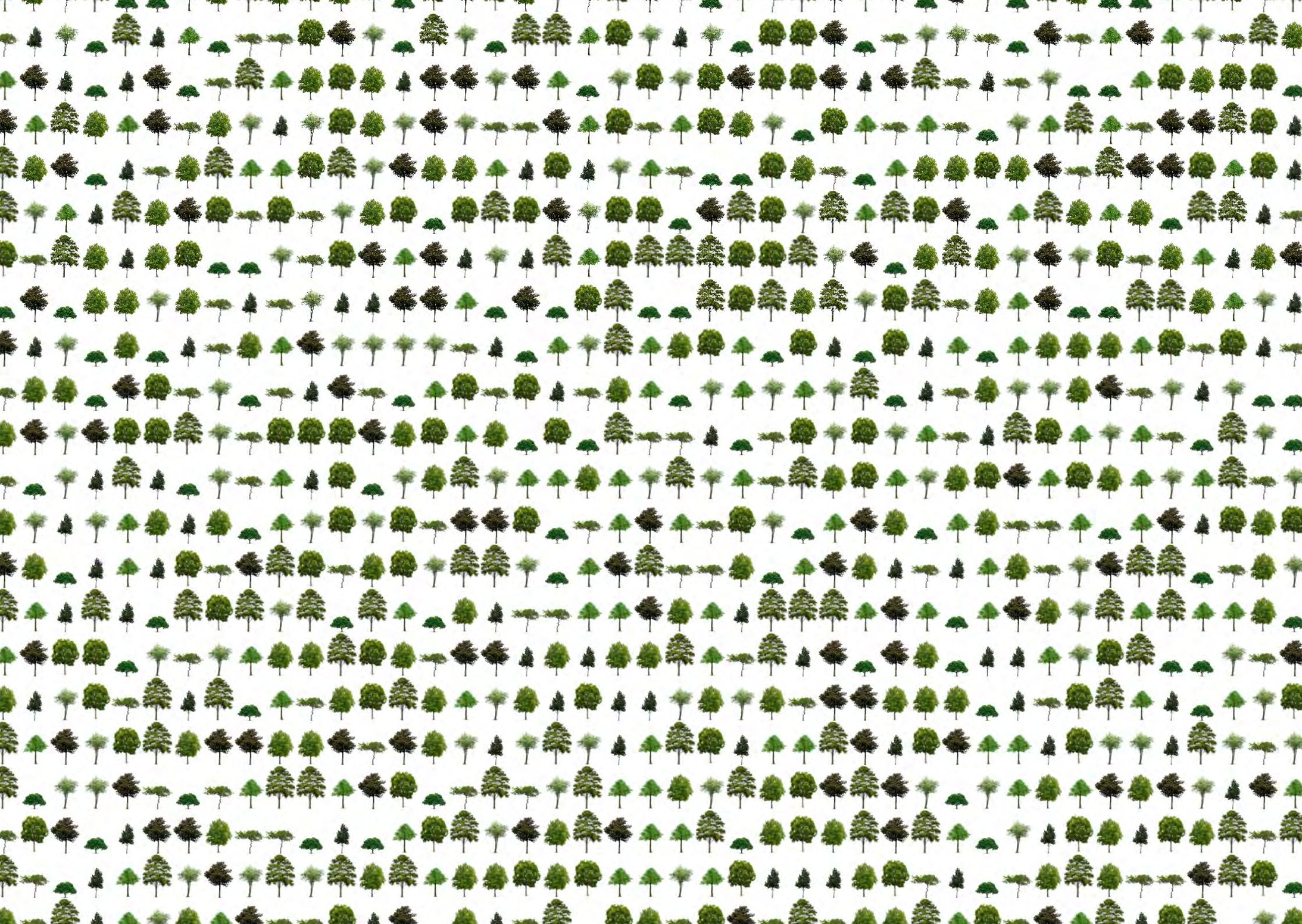
11. Àngels Margarit/Cia.Mudances. Retrieved from: http://margarit-mudances.com/en/

12. TalentLab, Co-creating Cultures. Retrieved from: http://co-creating-cultures.com/eng/?cat=239

13. CaixaEscena Pedagogical Kit, Co-creating Cultures. Retrieved from: http://co-creating-cultures.com/eng/?cat=522

14. Innovators 2015, NODE Center for Curatorial Studies. Retrieved from: http://www.nodecenter.org/curatorial-program-innovators/

15. Protocol for Interdisciplinary Research. HANGAR. Retrieved from: https://hangar.org/en/recerca/recerca-teorica/protocol-per-a-la-recerca-interdisciplinar/



VIDEO: Joana Moll
https://youtu.be/3Uqq1RRxWJ4

THE MATERIALITY OF THE NETWORK

Joana Moll[16] is an artist and researcher whose work is focused on the Internet, particularly its infrastructure and materiality. She presented two projects that reflect on the materiality of the network and its consequences for the environment by displaying in different forms the amount of CO_2 emitted by Google in real time. According to the artist's research, 1 MB of information equals 7,072 g of CO_2 (based on a study from 2013). **The estimated traffic on the Internet in 2015 was a total 966 exabytes (1,037,234,601,984 GB),**[17] distributed into 14.6 billion network connections among 3 billion users with an average rate of 24.8 GB of data per user and month. It is estimated that in 2018, **Internet traffic will reach 1,579.2 exabytes.**[18] Currently, Internet activity generates 2% of global CO_2 emissions, more than the amount produced by the aviation industry. These emissions are the result of the consumption of electricity by computers, routers, and other devices while receiving and transmitting data: a smartphone streaming an hour of video consumes more power than a refrigerator. Google was responsible for 0.01% of total global electricity consumption in 2012, equivalent to the amount of electricity consumed by the entire country of Turkey over the same period. Working with these numbers, Moll has elaborated two online art projects that aim to raise awareness about the global environmental impact a daily task such as browsing the Web has.

P.12-13: Joana Moll, DEFOOOOOOOOOOOOOOOOOOOOOREST (2015)

CO2GLE (2014) [19] is a single web page that displays the amount of CO_2 emitted by Google (that is, generated by the amount of electricity consumed by the number users who have accessed www.google.com) since the visitor first opened the page. According to the artist's research, google.com is the most visited site on the Internet. The content on the page is approximately 2 MB. At an average of 47,000 requests per second, the site generates nearly 500 kg of CO_2 emissions every second. The user is therefore confronted with a simple text that reads "GOOGLE.COM EMITTED ..... KG OF CO2 SINCE YOU OPENED THIS PAGE", the number of kilograms growing quickly and unstoppably. The artist states that, although the number is not precise due to the many factors involved in this calculation, it is important for her to find in a piece of art like this one mechanism with which to highlight the environmental costs of being constantly online.

DEFOOOOOOOOOOOOOOOOOOOOOREST (2015) [20] takes the previous work's message and approaches it from a different angle. It calculates the amount of trees needed to absorb the amount of CO_2 being generated by visits to www.google.com. Moll stated that her aim with this work was to "explore strategies able to trigger thoughts and actions capable of highlighting the invisible connections between actions and consequences when using digital communication technologies." She feels that humans are losing contact with their natural habitats while becoming

16. Joana Moll. Retrieved from: http://janavirgin.com/

17. Global Internet Traffic Projected to Quadruple by 2015, CISCO.

18. White paper: Cisco VNI Forecast and Methodology, 2015-2020, CISCO. Retrieved from: http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.html

19. CO2GLE, Joana Moll. Retrieved from: http://www.janavirgin.com/CO2/CO2GLE_about.html

20. DEFOOOOOOOOOOOOOOOOOOOOOREST, Joana Moll. Retrieved from: http://www.janavirgin.com/CO2/DEFOOOOOOOOOOOOOOOOOOOOOREST_about.html

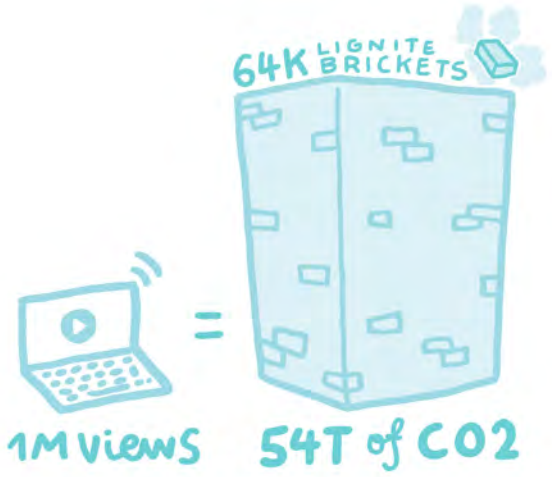
21. Tree Facts, American Forests. Retrieved from: https://www.americanforests.org/discover-forests/tree-facts/

22. Avatar – The Avatar of Avatar, SAUPKUNST. Retrieved from: http://kunst.1001suns.com/avatar-the-avatar-of-avatar/

We can basically say that the Internet is a very polluting factory

"increasingly machinelike and dependent on data." This artwork is based on the estimation that a tree can absorb **21.77 kg of CO_2 per year**[21] and, therefore, in order to counteract the amount of CO_2 emissions derived from using google.com, approximately 23 new trees per second are needed. The artwork displays a constantly growing number of small icons representing trees that quickly fill the screen.

Moll mentioned works of art by other artists on the same subject. Among them was the series ***Avatar* (2010)**[22], by Michael Saup, a physical representation of the amount of coal that was burnt to generate the electrical energy used to serve, transmit and view the video trailer of the sci-fi film *Avatar* (James Cameron, 2009) 1 million times. She also confessed that it has been hard for her to find more examples of art that deals with the environmental costs of online activity and invited the audience to share other examples they may know of. "We basically can say that the Internet is a very polluting factory", she stated, "and that is something that is not so evident while we use our devices. Although the subject has become more 'trendy' in recent years, I think that we have to do a lot more to highlight this problematic."



21. Tree Facts, American Forests. Retrieved from: https://www.americanforests.org/discover-forests/tree-facts/

22. Avatar – The Avatar of Avatar, SAUPKUNST. Retrieved from: http://kunst.1001suns.com/avatar-the-avatar-of-avatar/

COLLABORATIVE RESEARCH

VIDEO: Enric Senabre
https://youtu.be/8rR-Ld5B2c8

Enric Senabre Hidalgo, coordinator of the research group **Dimmons.net**[23] on digital commons and collaborative economy at the Universitat Oberta de Catalunya's IN3, addressed the question of which methodologies can be useful for collaborative research. Firstly, Senabre pointed out that all research has always been collaborative, although "in Internet times there are more tectonic, distributed and powerful possibilities." He presented an image of a public lab in a citizen science programme as an example of an ideal situation in a research process in which everyone participates in different ways. As part of his ongoing PhD research, Senabre is addressing how the methodological frameworks Agile (used in software development) and design thinking can be useful when applied to **collaborative research.**[24] In this regard, he stressed that he is not a designer, nor a developer, but has worked with these professionals for many years.

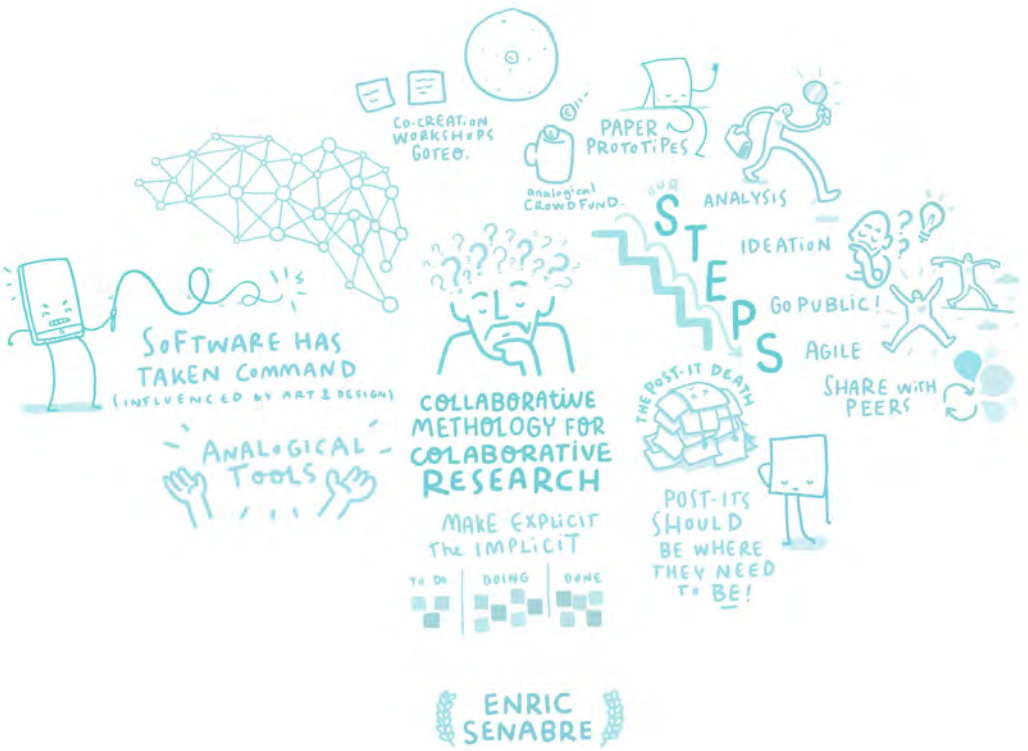
As a co-founder of the crowdfunding platform **GOTEO,**[25] since 2009 he has been working on the design and development of the site on the basis of design principles that have led to a myriad of co-creation workshops and collaborations. In these workshops, commonly known Internet interfaces were translated into offline, physical materials in order to make it easier for participants to understand the logic of crowdfunding and the needs of users. Following the concept of dotmocracy (voting by putting dot stickers on a flip chart) and using idea rating sheets, Senabre and co-founders of GOTEO Susana Noguero and Olivier Schulbaum applied different processes of collaborative research with simple materials that made it easier to understand rather complex situations. GOTEO is currently working with other organizations, such as the **Europeana**[26] foundation, dedicated to liberating cultural heritage for use in research, as well as at museums and universities and by developers. In collaborations such as

23. Digital Commons Research Group. Retrieved from: http://dimmons.net/

24. Collaborative methodologies for collaborative research, Enric Senabre Hidalgo. Retrieved from: http://www.backlogs.net/2016/08/02/collaborative-methodologies-for-collaborative-research/

25. GOTEO. Retrieved from: http://www.goteo.org/

26. Europeana Collections. Retrieved from: http://www.europeana.eu/portal/en



these, the common language that proves most useful in building software applications is a "collage technique" in which samples of materials and paper prototypes are used by different people from different backgrounds. As an example of an output of this collaborative work, Senabre presented **VanGo Yourself,**[27], a site that invites users to re-enact paintings by taking a picture of themselves and posting it online. The whole project was co-designed by a group of participants engaged in an iterative process and using very simple materials.

Senabre summarized the collaborative research/creation process in four steps:
1. Analysis: explore what has been done before on the same subject, with the help of other people. Senabre compares this phase to a literature review.
2. Ideation: what is the scenario, what are the questions that we are asking ourselves? This step can sometimes be frustrating, but it is still productive and constitutes a discovering and learning process. The first two stages are based on the "designerly way of doing", in reference to design researcher **Nigel Cross's book.**[28]
3. Go public!: an important aspect of prototyping involves deciding when a minimum viable product is achieved, and therefore when the project is stable enough to go public.
4. Agile development: continue iterating the process and maintaining the workflow.

VanGo Yourself

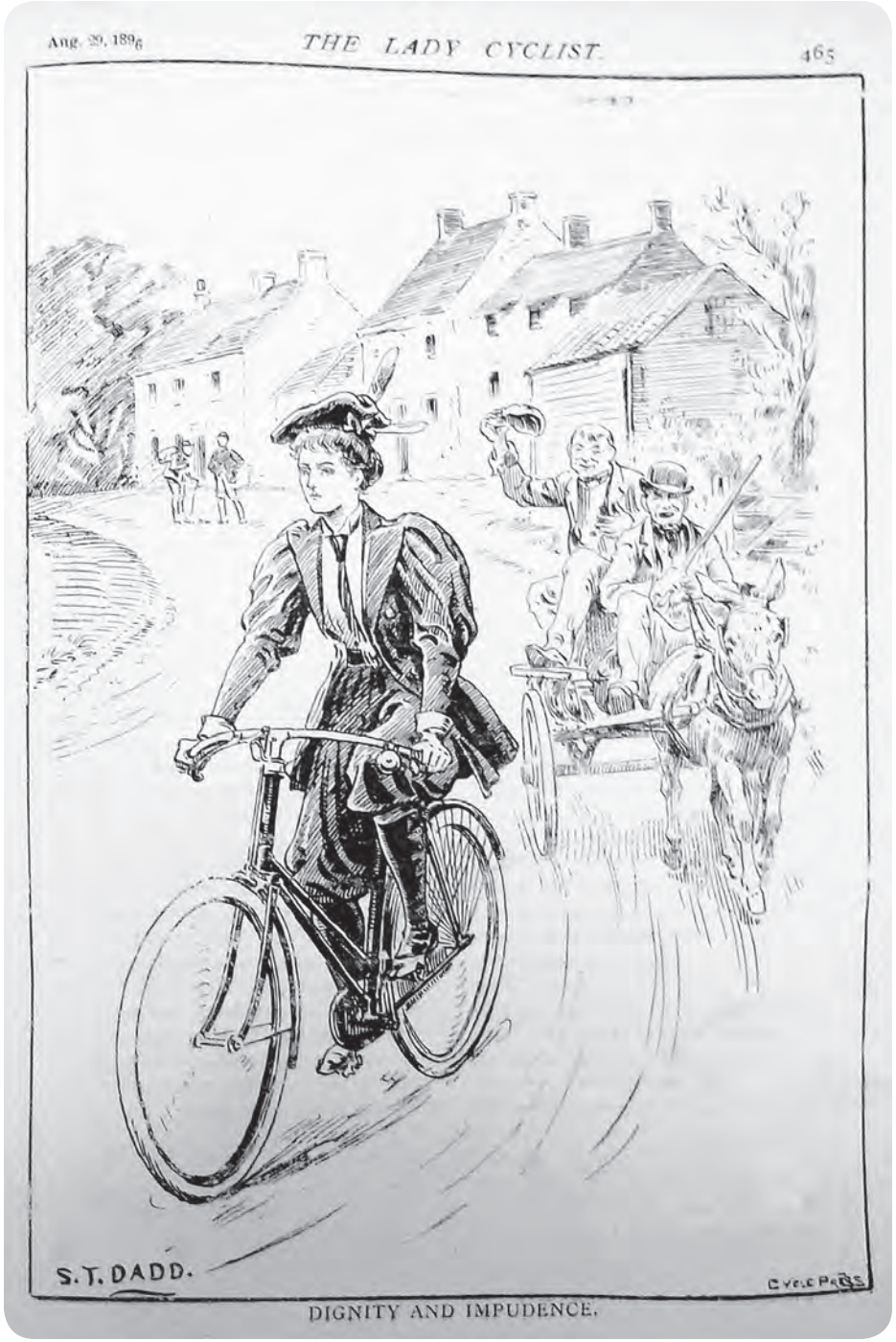
From his experience in numerous workshops, Senabre discussed several learned lessons, such as the need to "tame" the large amount of post-its and elements that are spread on panels and tables by keeping them in the right place and having **a pre-set structure to use and display them.**[29] Making explicit the implicit is another important lesson, in the sense that the participants have to be able to discuss where they are in the process and what has to be done, know the problems and not avoid the conflicts. Finally, Senabre concluded that "software has taken command", in a direct reference to **Lev Manovich's book:**[30] he stressed that all the analogic tools used in these collaborative research methods were deeply influenced by the icons and interfaces commonly used in digital devices. These icons, in turn, were influenced by art and design (as pointed out by Manovich), and, according to Senabre, they will lead to a "second movement" in which they will be needed as a common language for all sorts of collaborative, interdisciplinary undertakings.

27. VanGo Yourself. Retrieved from: http://vangoyourself.com/

28. Nigel Cross (2006). *Designerly Ways of Knowing*. London: Springer-Verlag. Retrieved from: http://www.springer.com/us/book/9781846283000

29. Senabre comments on the proliferation of canvases based on Alex Osterwalder's Business Model Canvas. Retrieved from: http://www.businessmodelgeneration.com/

30. Lev Manovich, *Software Takes Command*. New York: Bloomsbury Academic, 2013.



MAKING THINGS TO MAKE SENSE OF THINGS

VIDEO: Katrina Jungnickel
https://youtu.be/sCN2ZWg8Mys

Katrina Jungnickel,[31] lecturer at the Department of Sociology at Goldsmiths, University of London, presented one of her recent research projects, **Bikes and Bloomers,**[32] which analyses the changing social space in 19th-century Britain through the exploration of women's convertible cyclewear. Jungnickel described her work in terms of "making things to make sense of things", encompassing multiple formats such as websites, exhibitions, photography, and, more recently, interactive objects in the form of costume. Bikes and Bloomers brings these elements together while addressing mobile bodies, gender politics, and the changing nature of public space and citizenship in late-19th-century Britain. At that time there was a radical technological and social change, especially in relation to the popularity of the bicycle. Jungnickel focused on the clothing that people wore to cycle, particularly women's cyclewear, which introduced a critical change not only in terms of clothing but also in relation to women's social situation and freedom of movement. "From an STS perspective," she stated, "I think about clothing as a critical means through which different bodies are made to fit, both physically and ideologically, with new ideas about moving in and through public space."

When women started to use bicycles in the late-19th century they were restricted both by society's views of femininity and by their clothing. Long skirts were uncomfortable and potentially quite dangerous, but wearing more suitable clothes could lead to aggression and verbal and physical abuse. "Some portion of society", stated Jungnickel, "were quite threatened by the nature of this newly mobile woman and what she represented." But nothing stopped women from cycling, and they put several strategies into place. Some women inventively responded to these challenges through their clothing. They not only imagined, designed and made radical new forms of cyclewear, but

P. 20: illustration published in *The Lady Cyclist*, 29 August 1896 (p.465).

31. Kat Jungnickel. Retrieved from: http://www.katjungnickel.com/

32. Bikes and Bloomers. Retrieved from: http://bikesandbloomers.com/

they also patented their ideas. Exploring the archives of British patents between 1895 and 1899, Jungnickel focused on the design patterns of so-called "convertible cyclewear": streetwear that could transform into cyclewear and then back again, so that women could ride the bicycle without being harassed. "I really wanted to see these things in action", she said. "I wanted to see how they enabled or inhibited movement, how they were made, how they worked, how they broke, how they were fixed…". However, after visiting many museums and galleries that hosted large collections of Victorian sporting dress, she could not find any of these convertible cycling costumes. The reasons may have been that the dresses had not been deemed valuable enough to keep, or that they had worn out and been thrown away, or that, in some cases, they were inventions hidden in plain sight, undistinguishable from regular clothes. As dynamic elements, designed to be transformed and used, these dresses had to be worn to be properly studied, and therefore it became necessary to make the costumes using the patented patterns. "In a sense, this is the story of what happens when sociology, sewing and cycling collide", stated Jungnickel, "and it also poses the question: what does making and wearing your research bring to your practice?" Working with a research assistant, a pattern cutter, a weaver, an artist, and a filmmaker, she recreated the dresses while simultaneously conducting an ethnography of their making. The encounters, tensions, decisions and interpretations that had to be made in the process were also documented. "Throughout, we were interviewing the costumes," she asserted, "asking questions, exploring themes and emerging concepts, and trying them out in different places." In total, 29 items of clothing were made, which comprised five full costumes, each of them based on a convertible cyclewear design patented by a woman in the late-1890s. Furthermore, Jungnickel and her team of collaborators put on several performances in which they played the inventors telling the story of their dresses; ran sewing workshops; and invited people to put on the costumes.

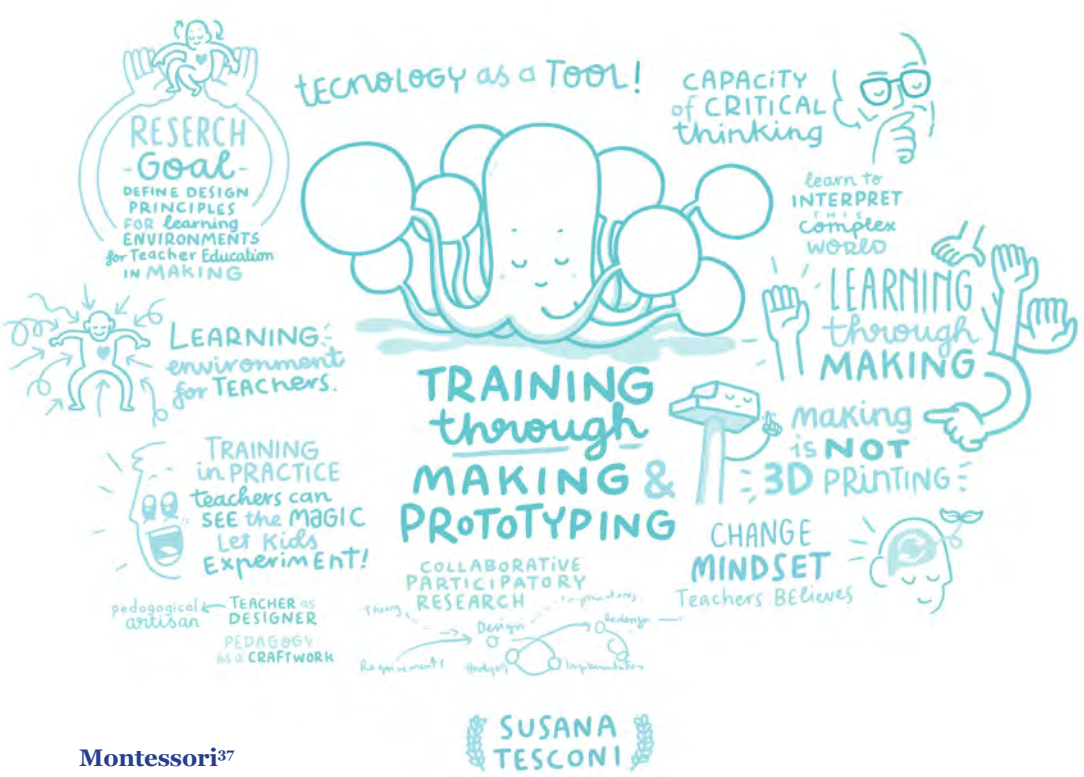
A book authored by Jungnickel will be published by Goldsmiths Press in which she tells the story of the dresses through the women's biographies, alongside a set of downloadable patterns that allow anyone to recreate the dresses. Additionally, the researcher is working with the head of Theatre and Performance at Goldsmiths to create a theatre piece. Jungnickel concluded her talk by considering several aspects of her research, such as space (where to carry out this kind of work?), identity (it can be challenging for people to see that a sociologist is doing work that seems more fit for an artist or designer), and outcomes (how does this matter?). Finally, she asked: "What can research look like? Is this research, and in what context?"

What does making and wearing your research bring into your practice?

VIDEO: Susana Tesconi
https://youtu.be/qF6jlAEWYXs

DESIGN-BASED RESEARCH ON LEARNING ENVIRONMENTS

Susanna Tesconi, [34], learning environment designer and educational researcher, presented her ongoing design-based research on learning environments for teacher education, taking place at **LABoral Centro de Arte y Creación Industrial in Gijón (Asturias).**[35] Her research goal is to define design principles for learning environments for teacher education in "making". "We are experiencing a relatively trendy moment for education", stated Tesconi, "particularly in STEAM education, that is, educational research about technology implementation in an educational setting, and especially in making. But sometimes we forget what we really mean to do and what choices we make in order to implement better learning environments for kids and students." Tesconi sees making as an emergent inquiry-based educative practice that has the potential to make a change in traditional teaching through invention and creative use of technology, therefore shifting from the mentality of a user to that of a creator. This implies also using technology as a material for building and self-expression, not just studying or using it as a simple customer. Tesconi referred to the work of Paulo Freire, ***Pedagogia da Autonomia***,[36] in the sense that the author states that an educator has to know in order to do his or her job and have the capacity for critical thinking and interpreting the complexity of their environment. As we are currently surrounded by technology, it is important to understand its complexity and political determination. Therefore, teachers must be aware of this in order to prepare their students to understand and interpret this complexity. Making is along the same lines as other pedagogical approaches, some of which are centuries old, such as learning by doing or learning by design. It shares with these approaches the idea that learning doesn't happen because there is a transfer of information, it happens because we are living an experience, expressing ourselves and building artefacts in a context shared with others. The ideas of **Bruno Munari,**[36] **Maria Montessori**[37] and the **Reggio Emilia approach**[38] can be implemented again with the new possibilities opened up by digital technologies.



Nevertheless, as Tesconi quickly asserted, "making is not 3D printing. It's very important to focus on methodology, because we have a myriad of powerful and fancy tools at hand, but in most cases we are using them in an old way, in a way that is very similar to **the 'Banking' concept of education,**[39] the concept used in the Industrial Revolution in order to train everyone at the same time doing very simple tasks." It is therefore necessary to change the mindset of teachers, which becomes very difficult in real schools, due to their structure and the training of the educators themselves. The type of teacher that Tesconi has in mind is the teacher as a designer, who knows how to observe the practice, observe the students, and who also knows how to be a researcher, a builder and sharer. She

33. Susanna Tesconi, Educational Artisan. Retrieved from: http://susannatesconi.net/

34. LABoral Centro de Arte y Creación Industrial. Retrieved from: http://www.laboralcentrodearte.org/

35. Paulo Freire (1996). *Pedagogia da Autonomia - Saberes Necessários à Prática Educativa*. São Paulo: Editora Paz e Terra. Coleção Saberes. ISBN 85-219-0243-3

36. I laboratori Bruno Munari, Associazione Bruno Munari. Retrieved from: http://www.brunomunari.it/index2.htm

37. Maria Montessori, NAMTA. Retrieved from: http://www.montessori-namta.org/Maria-Montessori

38. Reggio Emilia approach, Reggio Children. Retrieved from: http://www.reggiochildren.it/identita/reggio-emilia-approach/?lang=en

39. Paulo Freire, *The "Banking" Concept of Education*. Retrieved from: http://www.umsl.edu/~alexanderjm/The%20Banking%20Concept%20of%20Education.pdf

Teachers can see the magic of working in a constructionist way, letting their students freely experiment

describes this educator as a "pedagogical artist", emphasizing the idea of abandoning mass education and understanding pedagogy as an art or craftwork.

Learning design[40] is a field of study that works on this idea and tries to build a descriptive framework in order to share these practices among schools. Additionally, **teacher design research**[41] proposes involving educators in a deep, long project in order to change the space, redesign the curriculum, craft educational materials, and create a zone for innovation, where practitioner and researcher are working together, building knowledge. Working with these ideas, Tesconi carries out collaborative, participatory research into learning environments at LABoral, together with teachers, students, researchers and the art centre community. She applies a cycle of design, implementation, analysis and re-design, which although common in software development and other fields is not very popular yet in education. The process involves not only the improvement of the preliminary design but also the collection of data, which facilitates the production of theory. Analysing the collected data, Tesconi pointed out that several needs were detected among the participants and that 80% of them were related to emotional management (urge to intervene, interactions among students, negative attitudes, and so on). In this regard, a key element is training in practice: "We are working with the teachers and the students at the same time", she stated, "so we can intervene, observe and interact with them in the classroom. Here, teachers can see the magic of working in a constructionist way, letting their students freely experiment and go on with their creative process." In her closing remarks, Tesconi admitted that design research involves a set of different activities (analysing data, reflecting on methodology, disseminating research results and empowering participants to voice their needs), which begs the question of whether all of them can be done at once. She concluded by presenting a selection of bibliographical references on education and design research.[42]

40. Marcelo Maina, Brock Craft and Yishay Mor (Eds.) (2015). *The Art & Science of Learning Design*. Rotterdam: Sense Publishers. Retrieved from: https://www.sensepublishers.com/catalogs/bookseries/technology-enhanced-learning-1/the-art-and-science-of-learning-design/

41. Ulla-Maija Bergroth-Koskinen & Riina Seppälä (2012), "Teacher-researchers Exploring Design-based Research to Develop Learning Designs in Higher Education Language Teaching". *Apples – Journal of Applied Language Studies*, Vol. 6, 2, 2012, 95–112. Retrieved from: http://apples.jyu.fi/article_files/Final_Bergroth-Seppala.pdf

42. The selection included the following titles: *Mindstorms: Children, Computers and Powerful Ideas*, by Seymour Papert; *Pedagogía de la autonomía*, by Paulo Freire; *Il metodo del bambino e la formazione dell'uomo*, by Maria Montessori; *Design as Art*, by Bruno Munari; *The Reflective Practitioner*, by Donald A. Schon; *The Art of Tinkering*, by The Tinkering Studio (The Exploratorium); and *Frankenstein Educador*, by Philippe Meirieu.

ENACTING THE HISTORIES OF TECHNOLOGY AND MEDIA

VIDEO: Nina Wakeford
https://youtu.be/VCcAV0XgyX4

Nina Wakeford, reader in **Visual Sociology** [43] at Goldsmiths, University of London, combined her presentation with the video of a performance she recently did as part of the live event **"We do not speak but confine ourselves briefly to the surface (a dramaturgy of interiority)"**[44] at the Institute of Contemporary Art (ICA) in London. Wakeford opened her speech with the questions: "How do we enact the histories of technology and media? What are the artistic research methods that help us engage with the past? What resources do feminist STS offer us as artists, and then back into STS through artistic research?" One of the resources that is being used

43.Visual Sociology, Goldsmiths. Retrieved from: https://visualsociologygold.wordpress.com/

44. "We do not speak but confine ourselves briefly to the surface (a dramaturgy of interiority)", ICA. Retrieved from: https://www.ica.org.uk/whats-on/we-do-not-speak-confine-ourselves-briefly-surface-dramaturgy-interiority

and mobilized within feminist and queer art at the moment is the idea of temporal drag: whereas traditional drag uses the excesses of gender, temporal drag uses the excesses of time to perform. Wakeford has been interested in these excesses of time (embarrassment, sentimentality, nostalgia) to perform and engage her interest in technologies and media. She has collaborated with artists **Pauline Boudry and Renate Lorenz**[45] as well as **Sharon Hayes** [46] and other artists who use re-enactment, archival sources and the technologized voice, drawing from feminist science and technology studies and in particular those studies that have an interest in excess and non-utilitarian approaches. She is interested in doing an STS that also allows desire and affects, which connects with the idea of temporal drag. In relation to how STS might affect artistic research, Wakeford mentioned the work of **Susan Leigh Star,**[47] "whose poetry and poetic (and romantic, sometimes) engagements with the field suggest the possibility and importance of engaging and embarrassing others." In line with this, she is interested in improvised speech and invoking past media through a vulnerable combination of singing and shouting.

Wakeford also addressed her work with Celia Lury on **inventiveness and inventive methods.**[48] "The proposition is that when an inventive method is addressed to a problem (social, artistic, etc.) neither the method nor the problem remain unchanged," she stressed. In the performance at the ICA, she performed a set of songs and speeches about Cold War technology, particularly regarding ideas of nuclear armament, in combination with a piece of 16-mm footage produced from single-frame animation made with images of flowers taken from **Greenham Common,**[49] a women-only protest camp against US nuclear missiles, established in 1981. Her voice and singing were "battling" against the noises of a 16-mm projector, a technology that also has resonances with the Cold War. This example led Wakeford to address the question, "How can we think about artistic research and STS?", feminism being embedded in this issue. In her opinion, many researchers tend to fetishize sociological methods, which may be a problem. "One approach is to think that methods are not inventive," she stated. "If you know a bit more about ethnography or you can do a slightly better interview, your art would also be better: I don't think that this is a safe way of thinking about the production of artistic research." According to Wakeford, this attitude is being imposed in certain art institutions and funding mechanisms, which in her opinion is "dangerous for art." "I think that artists have to be less masochistic in relation to other kinds of knowledge", she stressed, "so we need to begin with an idea of inventiveness where things are transformed as we do our artistic research. We need to develop new songs for STS, shouts and appeals." In her closing remarks, Wakeford addressed the issue of transdisciplinarity by stating that, in the connections between artistic research and STS, "we should think what it means to recruit new people in this hybrid field and not necessarily worry about the purification of keeping art, design and STS separate."

Poster from the Greenham Common Women's Peace Camp. Source: People's History Museum

Artists have to be less masochistic in relation to other kinds of knowledge

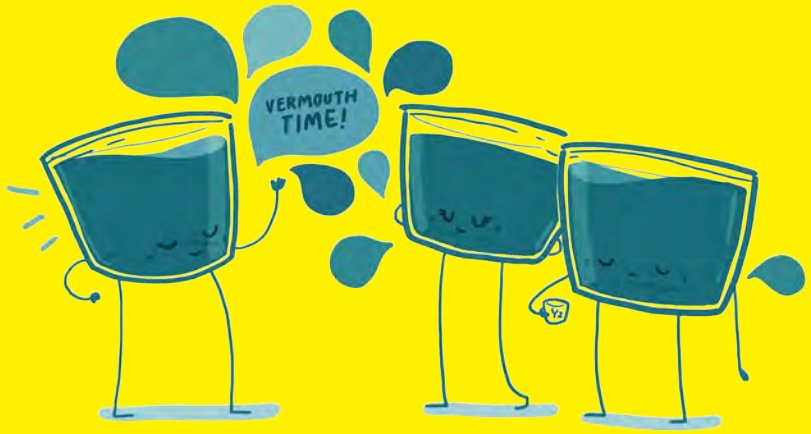
45. Pauline Boudry / Renate Lorenz, artists. Retrieved from: https://www.boudry-lorenz.de/

46. Sharon Hayes. Retrieved from: http://www.shaze.info

47. Susan Leigh Star. Wikipedia. Retrieved from: https://en.wikipedia.org/wiki/Susan_Leigh_Star

48. Celia Lury, Nina Wakeford (eds.) (2012). *Inventive Methods. The Happening of the Social*. Oxford: Routledge. Retrieved from: https://www.routledge.com/Inventive-Methods-The-Happening-of-the-Social/Lury-Wakeford/p/book/9780415574815

49. Greenham Common Women's Peace Camp. Wikipedia. Retrieved from: https://en.wikipedia.org/wiki/Greenham_Common_Women%27s_Peace_Camp



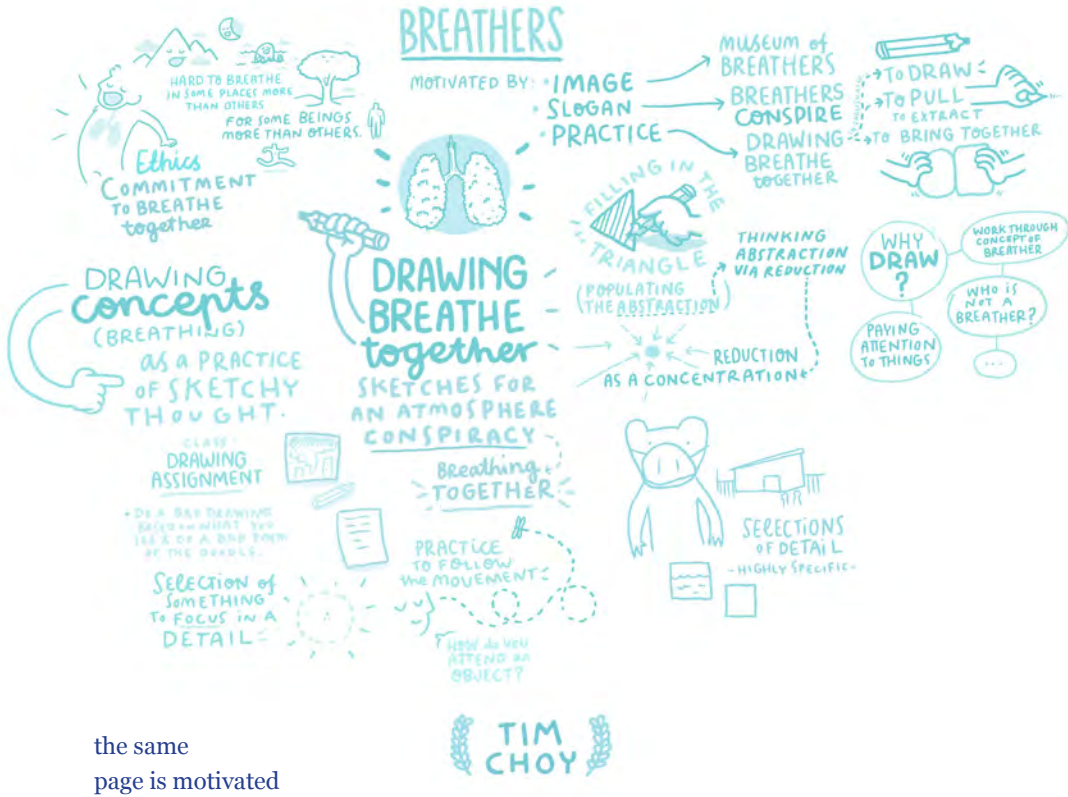
PECHA-KUCHA SESSION 2

VIDEO: Tim Choy
https://youtu.be/vg16mGV1liU

DRAWING BREATH TOGETHER

Tim Choy,[1] Associate Professor of Science and Technology Studies and Anthropology at the University of California, Davis, focused on the relationship between these fields of knowledge and the practice of drawing, in which "art sometimes get caught." Choy has been using drawing as a way to address several concepts related to the act of breathing and "the potential and challenges of figuring shared conditions (always unequal) of living in atmospheric suspension." He referred to this situation with the word "conspiracy", understood as **"breathing together."**[2] Not an artist or a designer, as he stated at the beginning of his talk, Choy is particularly interested in what drawing as a practice might offer as a method for ethnographic or conceptual making. His current project is called "Drawing Breath Together". It is a conspiracy catalogue, which he describes as "a commitment to breathing together from and in an unequally shared medium, an unevenly constituted planetary milieu for respiration where concentrations of being well and unwell accumulate differentially, sometimes quickly and sometimes slowly." Breathing therefore incorporates a large set of issues related to the environment, politics and social inequalities. It is, as Choy stressed, a problem of how to think and feel atmospheric subjectivity and co-implication. It is like displaying a graph that shows the difference between the personal cost (or apparent cost) and the social cost (or real cost) as it is studied in environmental economics. It represents an environmental externality: the cost that is not being paid when the pricing of something does not reflect the true cost of its production. This true cost is paid by "breathers", meaning those who are, in different ways, in the vicinity of what is being produced.

Thinking about these "breathers", Choy carries out his research in three forms: working with images (what he calls *The Museum of Breathers*), a slogan ("Breathers, Conspire!"), and a practice (which he describes as "drawing breath together"). The practice of drawing figures on



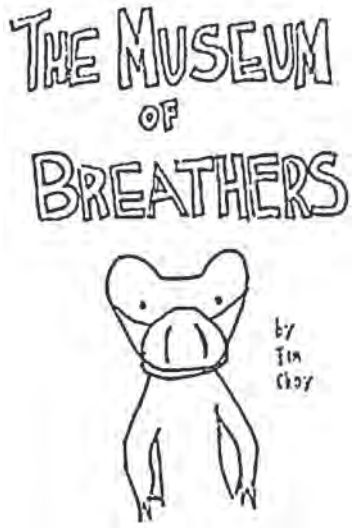
the same
page is motivated
by the museum and the
slogan, as well as the different meanings of the phrase "drawing together", such as "inhaling", "sketching", "pulling", or "extracting." Drawing helped Choy work through the concept of the breather and the political potential for an undifferentiated subject which is actually highly differentiated: breathing is a universalizing term, yet the conditions for breathing can be quite dissimilar in well and unwell beings. By means of drawing he sought to reach an abstraction that does not imply a thinning but instead a densification of the concept. Choy started drawing things, imagining breathing experiments and configuring a list of "trigger words for an atmospheric conspiracy", which included terms such as "agitation", "breathers", "concentration", "condensation", "dilution", "drift", "reduction", "suspension" or "vaporization." The aim of these activities is to find things specific to an atmospheric condition that

1. Tim Choy. Science and Technology Studies, UC Davis. Retrieved from: http://sts.ucdavis.edu/humans/tkchoy

2. "Conspiracy" derives from the Latin *conspirare*, (*com* "together" + *spirare* "breathe").

The selection of something to draw has an ethnographic attention to it

can be worked up into a theory or a poetics, "a principle of composition of language", stated Choy, "for a thinking that would reach for a rendering of current conditions and potential political otherwises." An output of his research is a comic book entitled *The Museum of Breathers*, part of his work to build abstractions that are coming from selections of detail, highly specific rather than general. It is also a response to the "highly invulnerable" forms of scientific visualization of atmospheric problems. Choy's drawings are, in contrast, highly vulnerable, and he even describes them as "a bad image: bad in relation to a digital visualization, a photo or a social documentation", which are the usual research documents of an anthropologist. He deems the resulting images "not useful for much," although he uses them as a method of research with his students. An example of this is a drawing assignment in which students were asked to make a doodle from the world that they are studying and then write a poem about it. "The selection of something to draw", asserted Choy, "has an ethnographic attention to it. When you draw you are tied to the thing you are sketching, but at the same time you are making a gesture that can connect to somewhere else."



COOKED SOCIOLOGY

VIDEO: Michael Guggenheim
https://youtu.be/9Zn4NNmf5GA

Michael Guggenheim,[3] reader in Sociology at Goldsmiths, University of London, and Director of the Centre for Invention and Social Process, opened his speech by commenting on transdisciplinarity and the concept of co-laboration discussed by Ignacio Farias earlier. "In my view," stated Guggenheim, "there is quite a naive view of what disciplines are, that assumes that people are part of disciplines, but this is wrong: it is a matter of learning how to do different practices, and then engage with different disciplines. We are not owned by disciplines." Referring to the book ***Fabvolution. Developments in Digital Fabrication,***[4] he mentioned that the question of whether it would be possible through 3D printing to build anything that we can imagine is misleading, since the problem is not whether we can build new things but the difficulty of coming up with new ideas. "The problem is, how can we get methods that allow us to throw things out there that aren't naive or banal?" One answer to this question, which Guggenheim has been exploring, is thinking through speculation as a method.

Emergency attack kit, Life, 1951

In relation to this, he explained his project **The Cosmopolitical Problem of Provision: Cooking Emergency Scenarios,**[5] an ethnographic research project about emergency situations and food. "In these situations," stated Guggenheim, "the State, in a rather paternalistic way, is giving directions to the population about what to do, mainly stock food." The specific needs of people are not considered. The project addresses this situation by producing emergency scenarios in a workshop in which people are invited to imagine disasters and in turn invent dishes that respond to them and create particular social situations. A simple

3. Michael Guggenheim. Goldsmiths, University of London. Retrieved from: http://www.gold.ac.uk/sociology/staff/guggenheim/

4. Óscar Guayabero et al. (2012). *FABVOLUTION. Developments in Digital Fabrication*. Barcelona: Museu del Disseny de Barcelona. Institut de Cultura. Ajuntament de Barcelona. Retrieved from: http://ajuntament.barcelona.cat/museudeldisseny/en/publication/fabvolution-developments-digital-fabrication

5. Cooked Sociology. Michael Guggenheim. Retrieved from: http://www.migug.net/?page_id=22

questionnaire is used to create these dishes, by focusing on the eating situation and the tools used, as well as the sounds, textures, colours, smells, tastes, and forms experienced by those eating the dish. Therefore, the objective is to turn the provision into a dish that people would want to eat collectively in the corresponding scenario. "It is not an illustration of the disaster," stressed Guggenheim, "rather a way and a very basic method of thinking how to come from a disaster to an emergency provision, something that we would want to do if that thing were to happen." Some of the scenarios submitted were quite imaginative and surreal: one person described a dreamlike situation in which she was trying to get on a plane but had to first tie her shoe laces, and since the laces got longer and longer she could not tie them. The food situation interpreted this nightmare by creating a corridor with four stripes of food, evoking the shoe laces and the airport runway. Participants then ate the food, solving the problem of the entangled shoelaces by eating them. Another proposed scenario was a collapsed wardrobe; the solution was a tower of small bricks of sweet-cooked vegetables. A scenario where a mysterious virus made people lose their sense of taste and smell led to considering a dish that could be served to the senseless population, taking into account their different cultures and faiths. The result was a dish made of rice in different textures (rice crackers, milk rice, normal rice), as well as chicken, peanuts and shellfish, all served according to people's incompatibilities with certain ingredients (due to allergies or religious beliefs). Finally, Guggenheim described a scenario in which people were only able to perceive in grayscale. The dish answered this affliction by using colourful food that people had to eat while wearing a mask, therefore rendering their ability to perceive the colours a moot point.

THE INFLUENCERS

Bani Brusadin, independent curator and researcher based in Barcelona, presented **The Influencers,**[6] a festival about unconventional forms of art and communication that he has co-directed with artists **Eva and Franco Mattes**[7] since its creation in 2004. At this event, speakers are invited to showcase their experiments in art and communication and sometimes objects are produced, such as the IKEA-inspired guillotine created for the poster of the 2010 edition. The way in which the festival has carried out its communication has been, at times, challenging for the hosting institution, the **Centre for Contemporary Culture of Barcelona (CCCB).** [8] For instance, the poster for the 2012 edition was dominated by the image of the trollface meme and had no sponsor logos in it. The organizers focus on the non-conventional in art and communication, considering art as "a social machine that tries to interact with other social machines." The event addresses guerrilla communication as action and storytelling, where meaning is enacted, performed and circulated, clashing with existing narratives. "Basically, it's a festival about performing media, being media, performing data in one

In an emergency situation, the State, in a rather paternalistic way, tells the population to stock food

VIDEO: Bani Brusadin
https://youtu.be/D9aJFSP7CVM

6. The Influencers. Retrieved from: http://theinfluencers.org/

7. Eva and Franco Mattes. Retrieved from: http://01001011101011101.org/

8. CCCB. Centre de Cultura Contemporània de Barcelona. Retrieved from: http://www.cccb.org/en

way or another," stated Brusadin. One of the first editions of the festival had as a speaker **Joey Skaggs,**[9] an artist and social activist known for his media hoaxes in the late 1970s and 1980s, which made the mass media unwilling participants of his satirical pranks. "Nowadays this may seem less relevant," stressed Brusadin, "but at that time it was the only way to become part of the social machine. Performing media means being part of this machinery, breaking it, sabotaging it, hacking it." He recognizes that the mass media machine is so big that the little changes that these media performances introduce could be considered irrelevant, but in the end they produce a story that may inspire others. The list of speakers that have participated in The Influencers includes totalitarian artists from Yugoslavia, a Mexican wrestler, the activist group **The Yes Men,**[10] post-religious preacher **Reverend Billy and the Church of Stop Shopping,**[11] and the Czech artist group **Ztohoven.**[12] "We are introducing fiction into the core of reality and seeing what happens," stated Brusadin, while presenting some of the projects carried out by these artists and activists, all of them playfully disrupting the media or the public space.

However, when the festival invited artist **Trevor Paglen**[13] in 2008, the organizers realized that some sort of shift was taking place. They had been interested in tapping into the media, but the media was getting more and more complex. In his work ***Limit Telephotography* (2012),**[14] Paglen took photos of classified military bases in the United States by using unorthodox imaging techniques. "These pictures try to create an image of something that is not representable," stated Brusadin. Paglen's work was representative of a type of media performance that went beyond the mere prank to engage in political issues. Another outstanding speaker was the late **James Acord,**[15] an artist who attempted to create sculpture with radioactive materials and was present at the 2010 edition of the festival. "We like people who think outside of any box", stated Brusadin, who described the festival as "messy", combining all sorts of labels (new media, performance, post-Internet...) and skipping them at the same time. The festival was initially focused on Net art and virtual communities, but as the political scenario changed in relation to media, activism and artivism became more interesting. However, "the more we were interested in hacking visibility, the more things were escaping our sight," confessed the co-director. "There was a double movement towards extreme visibility and extreme invisibility. We were trapped in a changing scenario." Brusadin described this new scenario as a struggle between humans but also between humans and machines, and between machines, without the need for humans. In this sense, he considers that the hacker culture tells a very interesting story, as a group of individuals are trying to understand machines, which are "totally non-human." Nowadays, stated Brusadin, "we are all part of a big computational machine made of flesh (humans) and infrastructures, software protocols, databases and so on."

"We are introducing fiction into the core of reality and seeing what happens"

9. Joey Skaggs. Retrieved from: http://www.joeyskaggs.com

10. Yes Lab. Retrieved from: http://yeslab.org/

11. Reverend Billy & the Stop Shopping Choir. Retrieved from: http://www.revbilly.com/

12. Ztohoven. Retrieved from: http://www.ztohoven.com/

13. Trevor Paglen. The Influencers. Retrieved from: http://theinfluencers.org/en/trevor-paglen/video/1

14. *Limit Telephotography*. Trevor Paglen. Retrieved from: http://www.paglen.com/?l=work&s=limit

15. James Acord. The Influencers. Retrieved from: http://theinfluencers.org/en/james-acord/video/2

Brusadin concluded his speech by describing three main fields or ideas in which he and the Mattes have been particularly interested:

1. Anonymity, identity and mass effect: the paradoxical collapse of identity on a planetary scale, combined with a renewed strength of identity. "Our identity is currently scattered all over the place. Corporations and the State want us to connect all these pieces to an accountable body, so what is anonymity?", asked Brusadin. Related to this strengthening of identity is the relative anonymity of user culture and its mass effect.

2. Materiality: understanding the materiality of this planetary machine we are part of, considering that some parts of this machine are beyond the understanding of humans, and therefore beyond control. "Hacker culture, cryptocultures, hacktivism and digital rights advocacy can tell us a lot of things in this respect", stressed Brusadin.

3. Visibility and invisibility: although this entails a binary distinction, it is intended to describe the two sides of user cultures, one being the memes and media hacks, the other being the "dark side" of infrastructures and people who want to remain invisible.

Finally, he invited the audience to attend the 2016 edition of The Influencers on 20 to 22 October at the CCCB in Barcelona.

DESIGNING A RESEARCH DEVICE

VIDEO: Liliana Ovalle
https://youtu.be/naqfV8gmXd4

Liliana Ovalle,[16] designer and researcher at the **Interaction Research Studio (IRS) at Goldsmiths, University of London,**[17] presented the project **Energy Babble,**[18] an automated talk-radio focusing on issues related to energy and the environment that is being developed at the IRS. Ovalle stressed that the IRS is interested in pursuing design not only as a problem-solving mechanism, but also as a way of encouraging playfulness. Most of their projects are designed for specific contexts, such as **The Prayer Companion,**[19] a device that displays short sentences about current news or people's feelings that was given to a group of nuns living in a cloister in New York. "We ask people to live with our designs, so we can learn from them", stated Ovalle. Energy Babble follows this line of research and involved collaboration between the design and science and technology studies at Goldsmiths. Instead of planning on the design of a device, the team engaged with members of seven energy communities from the UK using design-led methods to explore their needs. These interactions led to the Babble concept, which was later on refined through software development and product design.

The Babble is a beautiful object that broadcasts environmental and energy-related content taken from online sources (databases, Twitter accounts, websites) that also allows users to contribute by using the embedded microphone or sending SMS messages. These varied sources configure a mixture of voices that speak of different concerns, from personal, collective and institutional points of view, with different levels of authority. "It's a mixture that sometimes becomes humorous or nonsense about the discourses related to environmental issues," admitted Ovalle. The Babble has been, in fact, designed both as a tool for information and communication about practices and understandings related to energy production and

16. Some Work by Liliana Ovalle. Retrieved from: http://lilianaovalle.com/

17. Interaction Research Studio. Goldsmiths, University of London. Retrieved from: http://www.gold.ac.uk/interaction/

18. William Gaver, Mike Michael, Tobie Kerridge, Alex Wilkie, Andy Boucher, Liliana Ovalle, Matthew Plummer-Fernandez (2015). "Energy Babble: Mixing Environmentally-Oriented Internet Content to Engage Community Groups". In: ed. CHI '15 Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems. New York, NY, USA: ACM, pp. 1115-1124. ISBN 978-1-4503-3145-6 [Book Section]. Retrieved from: http://research.gold.ac.uk/11392/

19. The Prayer Companion. Goldsmiths, University of London. Retrieved from: http://www.gold.ac.uk/media/documents-by-section/departments/research-centres-and-units/research-units/interaction-research-studio/The-Prayer-Companion.pdf.

conservation and a system for portraying and even parodying the complexities of **energy-related discourse.**[20] The challenges faced when designing the device involved both its appearance and durability, as well as the proper functioning of all its technical components: it was meant not only to work properly in the long term (since it had to coexist with people from the energy communities for about six months), but also to incite the users to engage with it. The design was therefore carried out in several parallel processes that kept each other constantly informed and finally came together to produce the object. The device comprises a combination of off-the-shelf elements and custom-made objects: two custom blown-glass components are set on top of an injection-moulded base that houses the device's electronic components, including a Raspberry Pi microcomputer, various actuators, and a compact loudspeaker. The first glass piece amplifies the output of the speaker, while the second one holds a microphone. The use of glass and the shapes of these pieces are inspired in part by laboratory elements such as test tubes and beakers, but the shapes also evoke images of birdhouses and nests, as well as old radios and megaphones. An important part of the device is its soundscape, which is composed of the content culled from online sources, interspersed with jingles and chimes.

A total of twenty-one Energy Babbles were deployed to members of the energy communities (each community received 3 or 4 devices), while the remaining 5 Babbles were distributed among team members. Volunteers lived with the Babble for an average period of six months. The results, which are discussed in a paper authored by the members of the Interaction Research Studio and Mike Michael from the Department of Sociology and Social Policy of the University of Sidney, draw interesting conclusions about the Babble as a device that becomes both a research tool and a product.

"We ask people to live with our designs, so we can learn from them"

The Energy Babble

20. William Gaver, et. al., op. cit.

VIDEO: Round table
https://youtu.be/LIP003xIW-8

ROUND TABLE DISCUSSION

Pau Alsina opened the round table discussion by asking: "What can STS do for art, and what can art do for STS?" As a researcher in art, science and technology, Alsina asserted that "STS has been very useful in the sense of trying to overcome some of the long-established debates about the differentiation between theory and practice, between subject and object, discursivity and materiality, and all of these dichotomies that underlie modern art history and Hegelian aesthetics." Alsina posed the question of the relationship between art and design from the perspective of STS to the participants in the panel.

Dehlia Hannah,[21] curator and philosopher of science and aesthetic theory, addressed what she perceived as the "ongoing tension between utility and playfulness" in art and design. She stressed that sometimes scholars "double into design practices, drawing, sketching and dressing up as a way of escaping the conventional thought forms and activities that are present in the scheduled intellectual production." Hannah pointed out what she described as "an element of trickery" in the methods used in research and how they are described and presented (for instance, in funding applications) in contrast to what is actually being done by researchers as they engage in interdisciplinary projects. She also commented that the vermouth session, in which the alcoholic beverage is actually served, exemplifies a way of creating a productive encounter between the arts and sciences and STS scholarship by moving away from familiar tracks and comfort zones.

Deborah Lanzeni,[22] researcher at the Universitat Oberta de Catalunya, mentioned her background in anthropology, which combines social anthropology, archaeology and biology, stressing that she feels "closer to the sciences than to art." In this sense, she affirmed that, when working with designers and engineers, the focus is placed on solving problems, which determines the methods being used: "methods have to come to us with

things
in order",
she stated. In
relation to STS, Lanzeni felt that it could bring "analytical suffocation" and wondered how to engage in research with something that is not dogmatic, that needs a method to be put in order. This led her to question why research should be carried out into the connection between STS, art and design, and also what could and could not be done in the context of this transdisciplinary research. Therefore, Lanzeni stressed the need to focus on why these disciplines are being connected rather than assuming this connection between them.

Alex Wilkie,[23] Director of the Centre for Invention and Social Process at the Department of Design at Goldsmiths, University of London, addressed three main concerns he had detected during the presentations. First, the epistemic work, a main concern of a lot of STS studies: "I wonder if what we have seen today, these collaborations, is something

21. Dehlia Hannah. Retrieved from: http://dehliahannah.com/

22. Deborah Lanzeni. Mediaccions. Retrieved from: http://www.mediaccions.net/debora-lanzeni/

23. Alex Wilkie. Goldsmiths, University of London. Retrieved from: http://www.gold.ac.uk/design/staff/wilkie/

How to allow invention without turning it into a method?

we can categorize as epistemic work." He stressed that artists and designers may not like to see their work described as epistemic, and commented on "the problem of being critical and showing people the ideologies at play."

Wilkie considered the latter issue to be his second main concern, which led to the third: how to deal with practices that involve invention rather than innovation, and to incorporate invented methods. These methods can "become recipes, and once we get recipes we know what we are going to get out of them." Wilkie concluded with the open question: How to allow invention without manipulating it into becoming a method?

Amanda Windle,[24] Head of the DigiLab at London College of Communication, University of the Arts London, began her speech with a provocative question: "If we spend so much time concerned with art, design and STS boundary-making, then do we go far enough into our investigations and increase invisibility, not really showing all the difficulty, mess and issues that we are experiencing?" She also addressed a series of questions to the participants of the entire session.

She asked Bani Brusadin why he used categories of soft violence (sabotage, cut, insert) as a sort of meta haven; addressing Michael Guggenheim, she inquired how he knew when his practice was enough and wondered if one could "feel full about catastrophe." She disagreed with Susanna Tesconi in terms of the "need to go back to craft," and also asked Ignacio Farias if he was becoming the gatekeeper of STS for architecture students.

She asked Joana Moll if it was enough to just show the pollution generated by Google or if she should also show the pollution generated by the artwork itself. Along similar lines, she criticized Liliana Ovalle's work for using very sophisticated materials and demanded an account of the materiality of the materials and their environmental cost. She asked Tim Choy: "How is breath being drawn between art, design and STS?" Enric Senabre's presentation led Windle to ask herself when a material was stable enough to share and make public.

The question for Irene Lapuente was "How do you replenish in transdisciplinarity and in participation?" Katrina Jungnickel's project left Windle wondering how to learn from existing garments. Finally, the question she posed to Nina Wakeford was if her project was to be understood as "a protest, a manifesto or a manifest."

Windle's questions were left unanswered, but, as stressed by Pau Alsina, they revealed a tension between reflective epistemology and methodology. The session ended without any further involvement from the audience.

24. Amanda Windle. Design, Research, Practice and Teaching. Retrieved from: https://amandawindle.com/

ART & DESIGN BY OTHER MEANS: RESEARCH, METHODS AND PRACTICES

Co-organized by the UOC-Telefónica Chair in Design and Multimedia Creation & the Museu del Disseny de Barcelona.

In collaboration with:
Barcelona Science and Technology Studies Groups (STS-b)
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