PLASTIC JUSTICE

A TEACHERS' GUIDE

Plastic Justice
A Teachers' Guide

Contents

Introduction

How do we teach environmental issues to graphic design students? How does one include present-day environmental issues, activism, and opinion in the graphic design curriculum? These are questions that teachers from the five art and design institutions and members of the ELIA Team sought to answer through the teacher training activity as part of the Plastic Justice Erasmus+ Strategic Partnership Project (2020–2022).

At the peer-to-peer teacher training activity held at Vilnius Academy of Arts, the participating teachers[1] discussed, debated, dialogued, experienced, worked with NGOs, experimented, and practiced communicating the different and manifold aspects of microplastics and health issues. This group also discussed the role that graphic design students (BA and MA) could play in creating awareness and understanding about the many dangers of microplastics. Knowledge was shared regarding the inclusion of environmental issues, activism, research, and response formulation in the curriculum of graphic design, both at undergraduate and postgraduate level.

This intellectual output—Plastic Justice Advocacy (Teachers' Guide)—is an accumulation of the various insights provided by the teachers over the project's two-year period. Guest teachers Úna Henry (St. Joost, Breda) and ELIA Team member Derville Quigley (Amsterdam) also contributed to the guide. Topics covered in this guide are:

– Activism and policy change
– Drafting policy letters
– Sustainability
– Students, tutors, and the Plastic Justice Project
– Environmental issues in the art and design academy
– Theory and practice: environment and design curriculum
– Addressing sociopolitical challenges in an art academy

I would like to take this opportunity to thank all the teachers and guests who contributed to this guide. Also, my thanks to all the students who participated in this project and helped the graphic design teachers learn, experiment, and practice the teaching of environmental issues.

APARAJITA DUTTA
Project coordinator
Royal Academy of Art, The Hague

Hopefully this Plastic Justice Advocacy will be a source of inspiration, further dialogue, and innovation in the teaching and shaping of graphic design curriculum across the borders of Erasmus+ and beyond. Let's hope this Teachers' Guide will be the start of Plastic Justice 2.0.

Biography
Aparajita Dutta is head of the international office at the Royal Academy of Art (KABK), The Hague

1   Peter A. Hall, Abbie Vickress, and Sakis Kyratzis (University of the Arts London); Isabel Ordóñez and Raúl Goñi (Elisava, Barcelona); Audrius Klimas (VAA, Vilnius); Hrefna Sigurðardóttir (IUA , Reykjavík); and Niels Schrader and Lauren Alexander (KABK, The Hague).
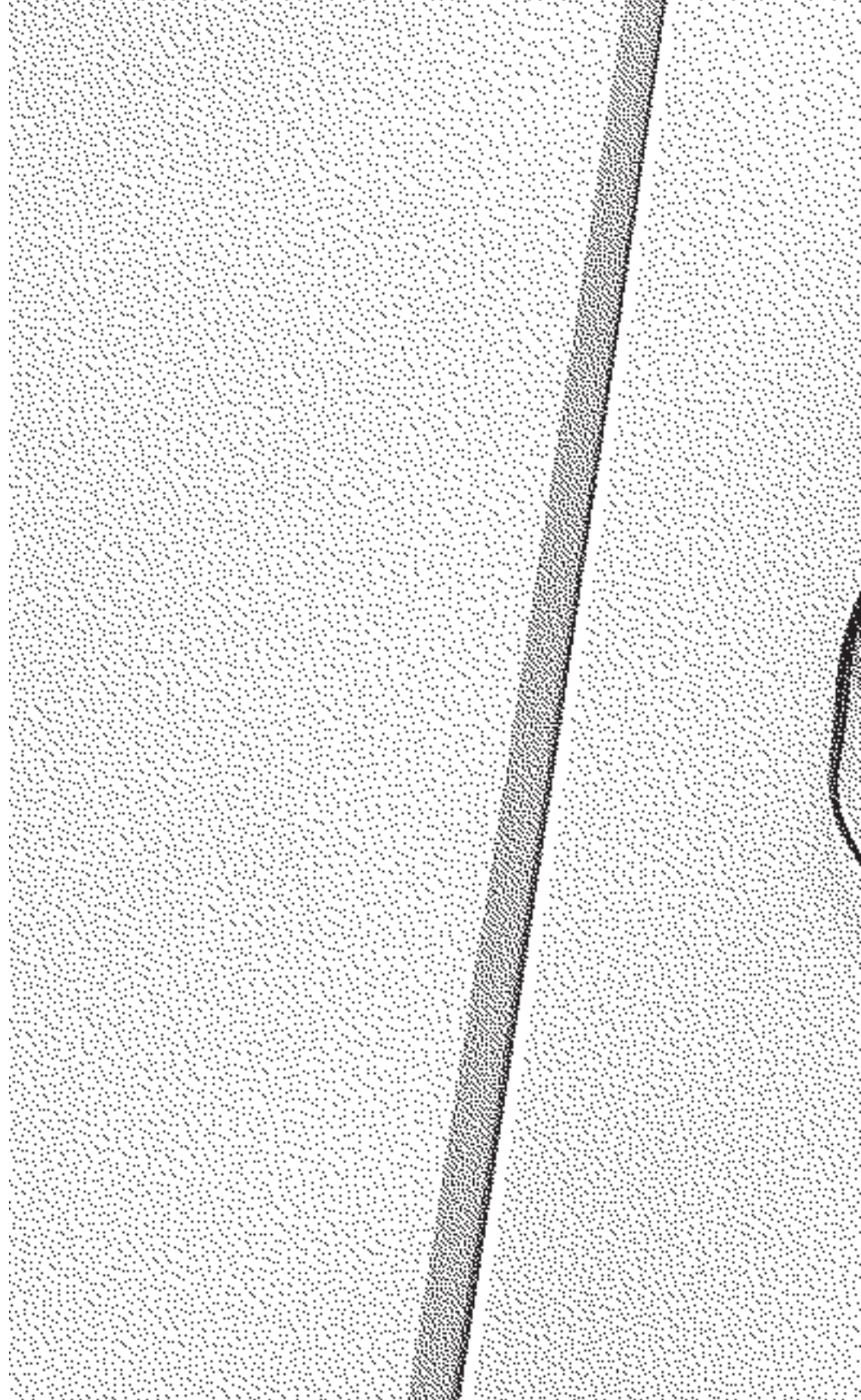
Plastic Justice
Project Outline:
Learning in Action
for Students and Tutors

LAUREN ALEXANDER

INTRODUCTION

The Plastic Justice project concept was originally conceived in 2019 by Niels Schrader (Head of Non-Linear Narrative, MA), Lauren Alexander (Tutor, Non-Linear Narrative, MA), and Aparajita Dutta (Head of International Affairs), all of whom work as educators and organisers at the Royal Academy of Art (KABK), The Hague. The original intention was to develop a structural way to bring projects and collaborations related to urgent environmental concerns into an academic curriculum for the graphic design discipline. The Erasmus+ Special Partnership Project (SPP) grant bid was written by KABK in collaboration with Elisava (Barcelona), Iceland University of the Arts (Reykjavík), University of the Arts London, and Vilnius Academy of Art, and was awarded in 2020.

FOCUS ON MICROPLASTICS

In 2019, knowledge about microplastics was not very widespread. The first articles and scientific research emerging at the time were related to microplastics being found in the unborn human foetus. That tiny pieces of plastic could find their way into our food, water, and even our bloodstreams is an incredibly frightening and incomprehensible prospect. The almost invisible and ubiquitous environmental problem presented an incredible and much-needed impetus for young students, researchers, and storytellers to bring more attention to it within the educational realm.

COLLABORATION

The project aimed to facilitate and promote the issue of microplastics locally within each region but also Europe-wide, and eventually globally. Each partner school brought forward particular spheres of interest reflecting their local environmental issues and existing educational practices. Collaboration ambitions extended to connecting with experts, researchers, academics, and NGOs who would be able to contribute to our knowledge and learning about microplastics. Our vision was to connect scientists with students during the project and, in doing so, facilitate the students in gathering information, data, and visuals, thereby contributing to impactful storytelling or creative manifestations of the microplastics issue alongside scientific or legal expertise.

INTELLECTUAL OUTPUT(S)

The main aim of the two-year project was to increase social engagement in the design curriculum by connecting students with existing plastic advocacy work. Using our collaborative efforts to gather and create output for distribution, and share our process and exchange knowledge, we developed a plan to work on three intellectual outputs.

1. Plastic Justice Repository: a publicly accessible website with information about the microplastics issue and documentation of the project process, student work, and knowledge exchange (www.plasticjustice.eu).
2. Plastic Justice Advocacy: a publication in the form of a Teachers' Guide, with tools and methodologies for incorporating the topic in arts and graphic design curricula.
3. Plastic Justice Verdict: a policy brief based on the project results.

The above-mentioned intellectual outputs, together with the planned activities, have resulted in a broad range of serious, well-documented and researched information about microplastics and their influence on our lives. The following project outline details all Plastic Justice activities, including specified learning activities and multiplier events designed to harvest, manifest, and distribute knowledge sharing in a cumulative and reflective manner. The continued stakeholder contributions from management, teachers, students, and external experts have been vitally important to the successful realisation and high level of innovation the project has attained.

The impact of the COVID-19 pandemic on the project was significant, forcing the first partner meetings and learning activities to take place online. This required academics, guest speakers, and students to quickly adapt their methods to support screen-based presentations and workshop activities, and in some ways helped the knowledge exchange by making the launch events more accessible to international speakers who were able to share their expertise online and whose presentations could be recorded and reviewed by students. However, the project's ideal of developing a convivial learning environment was significantly limited, particularly since it became apparent to students and tutors that the novelty of online learning was quickly wearing off, and students were also experiencing screen fatigue in their core studies. This placed more burden on tutors to maintain momentum and motivation in the classrooms.

OCTOBER 2019–MARCH 2020

Funding Application preparation and alliance forming between all partner institutions
– Organised by Iceland University of the Arts, Reykjavík, Royal Academy of Art (KABK), The Hague, Elisava, Barcelona, Central Saint Martins (UAL), London, and Vilnius Academy of Art
– Two in-person planning meetings were held in The Hague to develop the application

AUGUST 2020

Strategic Partnership Programme grant awarded by EU and realisation of the project commenced

8 FEBRUARY 2021

Plastic Justice Actions
Kick-Off Conference (online), multiplier event
– Organised by Isabel Ordóñez and Raúl Goñi, Elisava, Barcelona
– Publicly accessible event attended by tutors and students from all partner institutions

The Plastic Justice kick-off conference brought together twelve speakers to share their knowledge. The purpose of this online seminar was to introduce the topic together with NGO experts and scientists and to provide input for the follow-up online workshop during the same week. All lectures were recorded and remained easily accessible via the Plastic Justice Repository.

Artist/designer speaker:
–   Anthony Burrill (UK), Graphic artist who has
     worked on NGO campaigns

Governmental speaker:
–   Ms Hanna-Kaisa Torkkeli,
     European Chemicals Agency, Helsinki

Scientists and academic speakers:
–   Dr Martin Thiel, Universidad Católica del Norte,
     Department of Marine Biology, Chile
–   Dr Heather Leslie, Vrije Universiteit Amsterdam,
     Dept. of Environment and Health, Netherlands
–   Dr Raymond Pieters, Associate Professor
     Immunotoxicology, Utrecht University, Netherlands
–   Dr Alice Twemlow, Associate Professor at
     Leiden University, Netherlands

NGO speakers:
–   Madhuri Prabhakar, Plastic Soup Foundation, Netherlands
–   Irene Diez, Fundación Ecoalf, Spain
–   Jean-Francois Fillaut, Proplast, France/Senegal
–   David León, HyT (Hombre y Territorio),
     Libera project, Spain
–   Mattia Bernini, Precious Plastics, Italy
–   Philip Ehrhorn, Chief Technology Officer, The Great Bubble
     Barrier, Netherlands

8–12 FEBRUARY 2021

Five-day learning activity (online)
–   Organised by Isabel Ordóñez, Elisava, Barcelona
–   Facilitated by all tutors of the five partner schools
     and attended by five or more students from each
     partner school

**Students and tutors were divided into groups, mixed between
all the partner schools. Each group focused on a different
topic related to microplastics that was inspired by the confer-
ence on day one: environment, human health, companies and**

industries, activists and NGOs, local authorities, and policy-
**makers. All results of the group discussions were shared
in the form of a group presentation on day five of the activity,
with all participants present.**

FEBRUARY 2021 ONWARDS

Kick-off at partner schools
–   Each partner school selected at least five student partici-
     pants to work on the Plastic Justice project. The school
     interpreted the project via a teaching brief developed
     for the participating students and followed up on student
     progress through feedback and peer reviews.

Kick-off event at MA Non Linear Narrative, KABK
–   Organised by Niels Schrader, KABK, The Hague
–   Tutors and students from partner schools were invited to join

NGO speakers:
–   Madhuri Prabhakar, Laura Díaz Sánchez, and
     Anna van der Vliet, campaigners from the Plastic Soup
     Foundation, a Dutch environmental advocacy group

Scientist and academic speaker:
–   Alice Twemlow, Associate Professor at Leiden University,
     Netherlands

26 APRIL 2021

Expert Day
Recorded online event and learning activity
–   Organised by Lauren Alexander and Niels Schrader,
     KABK, The Hague
–   Tutors and students from partner schools were invited to join

**An intensive day of six important lectures providing multiple
new perspectives on microplastics research and fieldwork,
as well as a situated look at the role of colonialism in relation
to the issue. The lecture input helped students to develop and
crystallise their studio work in progress.**

NGO speaker:
- Ama van Dantzig, *Colonialism and Plastic Waste*, Dr. Monk, Ghana/Amsterdam

Scientists and academic speakers:
- Dr Patricia Corcoran, *Plastic Pollution in Sediment: A Powerful Icon of Human Impact*, Department of Earth Sciences, University of Western Ontario, Canada
- Dr Katarzyna Cwiertka, *Chasing the Utopian Dream: A History of Plastics*, Leiden University, Netherlands
- Heather Davis, *Plastic Matter*, writer and professor, Culture and Media Studies, The New School, New York City, US

Artists and designers:
- Brooke Singer, *Toxic Sites*, Toxic Sites NGO, co-founder, New York City, US
- Donald Weber, *War Sand*, photographer and educator, KABK, The Hague, Netherlands
- David Muñoz-Alcántara, *Out of the Blue? Juxtapositions of Extraction and Liquid Superstructures*, artist and founder of the research studio NÆS—Nomad Agency / Archive of Emergent Studies, Mexico

21 OCTOBER 2021

Plastic Justice Exhibition
- Midterm exhibition and seminar, multiplier event
- Organised by Niels Schrader, KABK, The Hague
- Theater Amsterdam, Amsterdam

Students from The Hague, Reykjavík, Barcelona, London, and Vilnius presented a selection of their work in the framework of a one-day exhibition in the foyer of Theater Amsterdam during the Plastic Health Summit, a large-scale event organised by Plastic Soup Foundation.

The one-day summit had a total of 36 speakers from 14 different nationalities who shared their experience and knowledge throughout the day. According to the Plastic Soup Foundation, 250 visitors attended the event and 12 million people were reached through social media. Visitors to the conference held at Theater Amsterdam included an international audience representing NGOs, local government organisations, and scientists. The event was a great opportunity for students to have elaborate discussions with professionals from the field and receive first-hand knowledge from experts at the forefront of the fight against plastic pollution. The exhibition was a great success and showed the value of cross-cultural academic exchange and field research promoting conscious design education.

Special guests:
- Úna Henry, Head of the Master Institute of Visual Cultures, ELIA board member and Plastic Justice evaluator
- Barbara Revelli, ELIA

10–12 NOVEMBER 2021

Staff training for all partner school tutors
- Organised by Peter A. Hall and Audrius Klimas
- Vilnius Academy of Art

The goal of the staff training was to establish a framework for the upcoming Teachers' Guide and to develop teaching methods addressing issues of climate justice and microplastics, in particular for the art and design curriculum. Tutors took the opportunity to share their teaching briefs and outlines and compare student outcomes. Students joined online and in person to share their evaluation of the didactic processes. The event included a field trip to Plasta, one of the largest plastics recycling companies in Eastern Europe.

Special guest:
- Úna Henry, Head of the Master Institute of Visual Cultures, ELIA board member and Plastic Justice evaluator

Plastic Justice Verdict, learning activity
- Organised by Isabel Ordóñez and Raúl Goñi, Elisava, Barcelona
- All tutors and at least five students from each partner school

The five-day learning activity took place at Elisava and was designed to culminate in the first proposal for Plastic Justice Verdict, a policy brief for adjusted legislation. The policy brief gives objective summaries of the relevant research, suggests possible policy measures, and advocates new legal strategies. With the valuable legal expertise and feedback of lawyer and educator Esther Kentin, students were able to formulate first concrete proposals related to legislation they deemed urgent.

External experts:
- Esther Kentin, lecturer at the Department Moot Court and Advocacy of the Institute of Interdisciplinary Studies at Leiden University, Netherlands. Kentin runs the Leiden Advocacy Project on Plastic.
- Dr Marta González, Head of the Materials Area of the Undergraduate Degree in Industrial Design Engineering, Elisava, Barcelona

Special guest:
- Úna Henry, Head of the Master Institute of Visual Cultures, ELIA board member and Plastic Justice evaluator

24 JUNE 2022

Plastic Justice Assembly (working title)
- Final conference, multiplier event
- Organised by Lauren Alexander, Aparajita Dutta and Niels Schrader, KABK, The Hague
- Royal Academy of Art (KABK), The Hague
- Public event attended by all tutors from partner schools and invited guests

The one-day conference event included the public presentation of the entire completed project output: Plastic Justice Repository, Plastic Justice Verdict (policy brief), and the printed Teachers' Guide.

The event included keynote speakers and debates that brought together academic researchers, non-profit activists, business practitioners, and policymakers for a final knowledge exchange and joint discussion on the impact of microplastics. By inviting strategic special guests and key players, this event aimed to directly call for corporate environmental responsibility and advocate new government policies and regulations. Plastic Justice Assembly was a dissemination platform for all the output of the Plastic Justice research, educational processes, and student manifestations.

Keynote speakers:
- Hilde Brontsema, Milieudefensie (NL)
- Paul Hamilton (UK)
- Juliet Ferguson, Centre for Investigative Journalism (UK)
- Special invited guests, including members of the Dutch Parliament and environmental activists

Biography
Lauren Alexander is acting co-head, BA Graphic Design and senior tutor, MA Non Linear Narrative at the Royal Academy of Art (KABK), The Hague

Tackling Wicked Environmental Problems in the Art and Design Academy

PETER A. HALL

As the spectre of the climate emergency looms over higher education, art and design teaching is beginning to move towards the collective challenges of wicked environmental problems. These kinds of challenges call for fundamentally different approaches to those in more traditional curricula focused on individual creativity or rationalist design 'problem-solving'. While the interdisciplinary and constantly changing nature of environmental problems call for new imaginaries and approaches, these same features can also leave students feeling overwhelmed by the scale and complexity of the entangled issues and result in a kind of creative paralysis. In this chapter, I review the concept of the 'wicked problem' as it relates to design education and look at the strategies that were adapted and developed for Plastic Justice in teaching and learning around the wicked environmental problem of microplastics.

DEFINITIONS AND RECENT DISCOURSE ON WICKED PROBLEMS

Microplastics pollution has come to light relatively recently and, as the subject of much ongoing scientific and policy research, new knowledge is continually emerging around the topic. For example, during the two-year period of the Plastic Justice project, world leaders from 173 countries at the UN environment assembly in Kenya agreed to develop a legally binding plastics treaty covering the production and disposal of single-use plastics, which also recognises the role of informal garbage pickers in collecting and sorting plastic waste for recycling. Not long before this, a report was published on a global study, finding that paint is the biggest contributor to microplastics in the oceans (Paruta et al., 2021). Published by the Swiss-based scientific research firm Environmental Action, the first-ever assessment of plastic paint leakage levels worldwide found that paint contributes 1.9 million tonnes, or 58%, of microplastics leaked into the ocean every year, significantly higher than previous consensus. Single-use plastics are undoubtedly a major cause of the microplastics problem, and, contrary to the widespread focus on consumer waste in the form of plastic packaging and

microfibers from textiles, the updates suggest that paint from marine vessels could be added to any definition of single-use plastic in the forthcoming UN Treaty on Plastic Pollution.

These two developments—an international treaty and a discovery about a major cause of microplastics pollution—illustrated not just the timeliness and urgency of the microplastics problem, they also supported its characterisation as a 'wicked problem'. According to Horst Rittel, who coined the term in the late 1960s, a wicked problem involves many fields of expertise, and the problem—and possible solutions—are constantly changing depending on who is examining them, and from what perspective (Termeer et al., 2019). The concept emerged in planning and policy discussions in the 1970s and has proven a durable counterpoint to rationalist models of problem-solving in design education. To simplify the ensuing discussion to two defining dimensions, a wicked problem involves many stakeholders from different fields of expertise who cannot agree on (a) how the problem is defined, and (b) how to solve it (Roberts, 2000, cited in Termeer et al., 2019). The definition of the wicked problem depends on point of view; understanding wicked problems and inventing possible solutions can always be broadened and deepened. They are not solved, but end only when we run out of "time, money or patience" (Rittel, cited in Dubberly, 2007). This indeterminacy contrasts with the rationalist models of problem-solving that have been dominant in design education and practice. Rationalist or 'tame' problems are linear in nature (ready-aim-fire or research-develop-execute) and their solutions are often inherent in their definition (Dubberly, 2007).

When design students realise how much there is to find out about a wicked problem, how much is still unknown or undecided, and how design 'solutions' to wicked problems can often exacerbate the problem, they can be understandably perplexed about how to even proceed. To teachers and students more familiar with solvable problems ('design a new identity for this failing brand') and individual creativity ('create a work that expresses your cultural identity/identities'), the wicked problem demands secondary research skills, resource-sharing, and collective ideating that can be quite unfamiliar in the art and design academy. As design educator

Brad Haylock writes of wicked problems, "The circumstances to which a designer must respond are not easily understood. Design education done properly must give to emerging designers a disposition and a suite of resources that will allow them not only to recognise complexity but also to be comfortable in the face of it and, further, to have some sense of how they might begin to tackle it" (Haylock, 2020, p. 247). However, while using the concept of the wicked problem, Haylock avoids the word 'wicked' because of its moral overtones, which he notes can be misleading for students, particularly those whose first language is not English (Haylock, 2020, p. 248). This reflects the fundamental importance of adapting teaching methods to the given cohort of students, an approach embraced by advocates of constructivist pedagogies which underlies the strategies outlined below.

The following strategies emerged or were identified during the development of the Plastic Justice project as a way of circumnavigating this paralysing effect. I present them here as an eight-point working list, not in the interest of defining a singular approach, but as points for further discussion, exploration, and continuation.

1.
SMALL WINS
In the fields of policy and governance where Rittel and Weber's concept developed, recent discussions on the limits of the wicked problem concept have noted that a partial solutions or 'small wins' approach to wicked problems may be the only feasible way beyond their paralysing effect (Termeer et al., 2019, p. 167). Wicked issues are often tamed by *excluding* actors with different perspectives, and sometimes innovative solutions to them are developed at the local level, as researchers have observed while looking into the wicked problems of counterterrorism and forced migration (for example, Noordegraaf et al., 2019, p. 291). A pragmatic, street-level perspective can inform and support a high-level understanding of wicked issues, and to bring these perspectives together requires that we (researchers) understand "how people actually experience and cope with wicked situations, but also how they pay attention to these situations,

what rules they follow and which routines they develop to deal with the enormity of the challenges" (Noordegraaf et al., 2019, p. 294).

Rules and routines might sound a somewhat unimaginative response from schools of art and design, but a mix of high-level analysis and pragmatic, street-level responses to a wicked problem like microplastics pollution presents a pragmatic approach. Rules and routines developed by creative practitioners are a familiar part of any studio methodology, and can be usefully applied to a sprawling, complex, even un-solvable environmental problem. The key for the creative practitioner is to allow their framework of rules and routines to be iterative and empirical—responsive to the observations and street-level responses encountered in the space of the problem. And with wicked problems, that space is enriched and enlivened by the input of experts from other fields.

2.
SEEKING EXPERTISE
& MAKING ALLIES

By its very nature, any design problem depends on expertise from other fields, and the emerging concern of microplastics pollution brings together an array of disciplines, from environmental and materials science, to cultural history and human behaviour, to environmental policy and law. The idea that art and design education might be interested in tackling wicked environmental problems is often a surprise to lawyers, governance experts, scientists, and engineers, particularly given that art and design are often characterised as the surface or decorative element of a technological solution or larger culture. When this limited and outdated characterisation spills into art and design education it also often troubles students confronted with a problem requiring extra-disciplinary expertise, in a similar way to the popular notion that climate change is seen as a problem 'not for us' but one that that only experts or far-fetched technological inventions can solve (like populating Mars once Earth is destroyed).

In the Plastic Justice project, it was essential that we brought to the table a host of disciplinary experts to share their insights and fresh findings on different aspects of micro-

plastics pollution, and this became a key feature of the programme as it shifted to online delivery during the first lockdowns of the COVID-19 pandemic. One unforeseen benefit of hosting the kick-off conference, learning activity, and expert day online was the ease with which the online resource, a web-based repository of articles and video recordings of the expert presentations, became a central tool for the learning activities of the project, the online format supporting and facilitating (sometimes) careful and repeated viewing.

Making connections with scientific, legal, and humanities experts is also essential to better inform the activist aspect of a wicked environmental problem, where alliances with experts can better direct and inform art and design students' and teachers' desire to instigate urgent change. While a street protest or intervention is often a necessary and important aspect of environmental activism, alliances with NGOs and policy experts can help art and design students understand and navigate the complexities of change at individual, organisational, and societal levels.

3.
LEARNING HOW WE LEARN

Motivation to learn can often be assumed to be plentiful among students and staff confronting environmental problems, who are usually drawn to those problems because they have a desire for individual, organisational, or societal change. On the other hand, as noted above, the scale and complexity of the problems can have a demotivating effect, what Timothy Morton characterises as a "PTSD (post-traumatic stress disorder) dream," which he argues is symptomatic of the "ecological information dump mode" of delivering information about the climate emergency, the scale and urgency of which people can have trouble responding or relating to (Morton, 2018, pp. 8–20). Morton makes a case for 'being ecological' through a process of realisation or 'attunement' to a care space wherein humans recognise their interconnectedness with the non-human world.

A social constructivist model of problem-based learning is useful here. Rather than imagining students as empty vessels who must be filled with knowledge or ecological data,

the classroom becomes a place where what the learner already knows is the most important factor influencing learning. The task for the teacher is not to demonstrate their expertise to the students, but to scaffold or facilitate a learning process that supports students' differing learning styles, cultural backgrounds, and existing knowledge and understanding of the given problem. In the case of microplastics pollution, knowledge of the extent and nature of the problem has been changing so quickly that teachers could not possibly maintain a position of superior subject knowledge. Instead, teachers and students are learning together, most visibly as new findings emerged during the course of the project (see Kyratzis & Vickress, pp. 36–49).

In Morton's argument, being ecological is in part recognising where we humans already inhabit a care space with non-humans. Again, the degree to which students are attuned to being ecological is dependent on their existing knowledge, cultural background, and ethics. Ongoing diagnostic self-assessment becomes a crucial part of the learning process. We ask ourselves, confronted with new findings or the just-viewed presentation: what do I know now that that I didn't know before? How does it change the way I think of the problem? How might I then go on to explain this to someone else?

The influential Soviet psychologist Lev Vygotsky conceived of a Zone of Proximal Development (ZPD) to describe the optimum space for learning between what the student already knows and that which is beyond the student's reach. He describes the ZPD as "the distance between the actual development level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, cited in Harland, 2003, p. 265). The social context of learning is critical in this model, as well as a built-in process of diagnostic self-assessment and reflection. In design methods discourse, the process of self-assessment and reflection is iterative, so that what the student knows already, what the student finds out through research, mapping, and prototyping, and what the student articulates about what has been learned (e.g., in a presentation or written reflection) is circular. The process ends only with the project

deadline. A poster diagramming this iterative creative process by the Dubberly Design Office (2009) characterises it with three arrows forming a circle, connecting the three words "make – observe – reflect."

4.
ANALYSING (LIFE CYCLE THINKING & ANALYSIS IN THE CIRCULAR ECONOMY)

One common and understandable response to wicked environmental problems is that they are the result of human behaviour, or 'greed' (this term was recently used by students in a presentation on species extinction), with the connotation that certain behaviours are natural or inevitable and cannot be changed—or are sins, confronted through a ritual of naming and shaming. If we take a broader historical perspective on art and design, however, one which zooms out beyond the Modern era and an emphasis on cultures of the Global North, it becomes easier to consider how other behaviours are possible and, indeed, precede what currently seems 'natural'. The concept of the 'circular economy' is commonly defined and introduced by providing historical and contemporary examples from the 'periphery' (i.e., outside the Global North or mainstream economic models) of circular systems. In contrast to the linear economy of 'take, make, waste' (Magnin, 2020), the circular economy long precedes industrialisation. *In The Circular Economy: A User's Guide* (2019), Walter Stahel illustrates the practice with the example of a pre-industrial castle demolished during peacetime so the materials could be used to build a bridge. Stahel characterises a circular economy as one that "enabled early mankind to overcome a scarcity of resources, people and skills by making the best use of the natural resources available; sharing and reuse were a necessity and the norm" (Stahel, 2019, p. xiv).

Equipped by a critical history to see that present-day practices are not necessarily natural, inevitable, or the result of greed, but are constructed by design, teachers and students will next need tools to facilitate how a circular economy approach might change current practices, such us the linear nature of plastics use (take, make, waste). Approaches to the analysis of the life cycles of goods and services to reduce

environmental impact and resource use across all life stages are characterised as Life Cycle Thinking (LCT), which has been integrated in EU policy since 2008. At the granular level of detail required by plastics use and disposal, however, LCT is challenging for art and design curricula, and again requires the support of experts in the field. Brimacombe provides the complex example of aircraft design, which, over the last 50 years, has increasingly used composite plastics to reduce the weight and energy consumption of the fuselage. Composite plastics, typically replacing aluminium, are much more difficult to recycle, so a Life Cycle Analysis (LCA) is needed to balance the reduced CO_2 emissions of the composite plastics fuselage against the recyclability and reduced end-of-life waste of aluminium. Countering the end-of-life waste of a plastics composite aircraft, the LCA must also consider that the production of aluminium creates more solid waste than the production of plastics.

It seems increasingly important to cultivate sophisticated skills of analysis in the art and design classroom, both to overcome the popular notion that a linear economy is inevitable, or the result of greed, and to inform design decisions at a more granular level.

5.
BEHAVIOUR CHANGE
(AUTHENTIC EXPERIENCE VS 'IDLE TALK')
There is high awareness of the plastic crisis, but this has not effected a change in 'behaviours related to the use of plastic' (Heidbreder et al., 2019, p. 1087). COP26 protestors and activists like Greta Thunberg have also picked up that the rhetorical opportunities presented by the gathering of world leaders has not been substantiated by measurable and achievable policy change. In their education work with fine art students, Rudman and Rudman describe this gap between awareness and action with the Heideggerian term 'idle talk' (Rudman & Rudman, 2021, p. 1490). They envision change through artworks that disrupt our normal ways of thinking and acting, and, by reconfiguring the everyday, prompt us to experience some aspect of the world afresh. Effective artistic disruption enacts French philosopher

Jacques Rancière's concept of a 'double effect', where a readable message is combined with a "sensible or perceptual shock caused [...] by the uncanny, by that which resists signification" (Rancière, cited in Rudman & Rudman, 2021, p. 1488). In a 2019 performance art project in Cape Town, for example, people dressed as 'plastic monsters' disrupted public space and drew attention to the problem of plastic marine litter.

A designerly approach to behaviour change is described by John Thackara in his account of a London College of Fashion event featuring experimental projects at the edges of the fashion and textile design industries, where the dominant 'two wash, two wear' mindset is moved towards a relationship in which clothes are conceived as alive. The ethos of care extends to the designers' relationship with their materials, with Thackara citing practitioners like the Dutch designer Christien Meindertsma, who makes textiles from locally produced flax; Sasha Doerr, who created a plant fibre and dye map with the nearby California Botanical Garden in Berkley; and Australian designer Emma Lynas, who mixes locally foraged eucalyptus leaves, thyme, cedar berries, and Aleppo pine needles to create natural dyes (Thackara, 2017, p. 91).

Both approaches to behaviour change described here suggest a radical transformation of dominant ways of being and knowing that is quite difficult to evidence with standard methods of measuring impact, be they the terms of academic research or business (e.g., key performance indicators). More demonstrable measurements of impact are in the nudge approach to behavioural change and the world of policy, which are discussed below.

6.
BUILDING CONVIVIALITY
& 'DESCHOOLING'
Do wicked environmental problems require that we teach differently? Tony Fry argues that designers are taught ways of knowing and acting in professional and non-professional lives that replicate "specific forms of the unsustainable" (Fry, 2009, p. 174). He makes a case for a broader sense of education,

beginning with "a reflective interrogation of one's knowledge, to begin to identify what one has formally and informally learnt and what in hindsight, can be seen as 'an induction into error'" (Fry, 2009, p. 174). This builds on Ivan Illich's earlier argument for 'deschooling', replacing institutionalised education that seeks ultimately to maintain itself and the status quo with a self-directed, incidental, and informal education supported by social relations: "educational webs which heighten the opportunity for each one to transform each moment of his living into one of learning, sharing, and caring" (Illich, 1971, p. 2). Illich's follow-on 1975 book, *Tools for Conviviality*, argues that instead of defaulting to industrial tools that predetermine the meaning and expectations of others, we need 'convivial tools', those which give each person who uses them the opportunity to "enrich the environment with the fruits of his or her vision" (Illich, 1975, p. 21). Applying Illich's legacy to art and design education, the Convivial Toolbox explores approaches aimed at collectively and creatively tackling wicked problems in place of design methods geared towards the production of goods (Sanders & Stappers, 2012). The emphasis on co-creation and co-design is fundamental to this shift, and Sanders and Stappers argue that convivial tools can operate at many different levels, for example, as platforms for the creative expression of individuals, as the means for achieving community goals, and for the end-user fabrication of products, as well as "methods, tools and techniques for exploring what conviviality might look like and feel like" (Sanders & Stappers, 2012, p. 7).

7.
COMMUNICATING
(POLICY & ACTIVISM)

Communication design has a significant role to play in all of the above, but specifically when it comes to visualising complexity, inspiring new ways of being and knowing, nudging people to behave in certain desirable ways, and lobbying policymakers and corporations to initiate change. To briefly sketch out each of these four points:

– Visualisation is a clear strength for graphic communication designers: making complex issues clear, accessible, and actionable through the selection, organisation, arrangement, and presentation of data and information.
– To inspire, meaning to breathe life into, or to influence, move, or guide through divine or supernatural agency, is perhaps the most familiar approach to art and design schools, closest to pedagogies based around creative, lateral, non-linear approaches to problems of persuasion.
– The 'nudge' approach to behaviour change argues that by making desired behaviours easy, attractive, social, and timely (Halpern, 2015, p. 149), you can nudge people towards them, without finger wagging or negative messaging. Famously, this approach was adopted by the Behavioural Insights Team, established by the UK Government in 2010 and led by David Halpern now as a social purpose company.
– Lobbying or political persuasion is perhaps most familiar to art and design students through the popular and recurrent brief to design a campaign poster or banner, or even the campaign itself. While this is a key avenue for creative thinking around activism, the world of policy change is often neglected in art and design academies, despite its clear and direct role as a catalyst for behavioural change and the measurable nature of research in this direction. In relation to microplastics, focused approaches can be quite creative. During the course of the project, we learned how communication campaigns can raise awareness of a proposed law against ecocide, or for a Plastics Treaty; designers can also partner with an environmental campaign to put pressure on a corporation to transform its practices, or on a government to change its policies.

An incremental shift in existing policy or an innovative new policy can catalyse quick and widespread behaviour change, and for this reason the Plastic Justice project identified a policy brief as its final deliverable (see Goñi & Ordóñez, pp. 82–91). Guidance from experts was essential here; in her lectures for the Plastic Justice project, Leiden University lecturer Esther Kentin showed how law moves at different

speeds and scales in the space of microplastic pollution, in part due to successful lobbying by industry. For example, until the EU introduced legislation linking all polymer types (e.g., PET, PVC, ABS), production of each polymer had to be regulated separately. Kentin also demonstrated how, by setting a lower limit to the definition of a microplastic at 100 nanometres, industry has effectively created a loophole for continued production of microplastics that are below a measurable size. On the other hand, activist groups like Friends of the Earth have successfully pressured corporations to make changes by threatening legal action. Another avenue for change is precautionary policy, to counter efforts by industry to use the lack of proof that microplastics are damaging to human health as evidence that policy change is premature. Instead, advocates of precautionary policy argue that treaties are not able to keep up with the rapid pace of climate change, and significant limits need to be placed on deforestation, urbanisation, and plastics pollution to avoid environmental catastrophe (BBC Radio 3, Arts & Ideas, 2021).

8.
FUTURING—IN CONTEXT
If one of the key problems of microplastics pollution is its invisibility and the seeming impossibility of taking urgent action on a perceived problem of the future. One area where art and design education is well-equipped to help is by world-building, or creating possible future worlds of the imagination to help us identify the trajectories of the present. The various approaches to speculative design (Auger, 2013) and futuring (Fry, 2009) that have been debated in design circles are being picked up in other fields, notably geography (Hoffman, Pelzer et al., 2021).

Indeed, design's role in creating future scenarios to envisage intermediate steps has by now a critical history incorporating the post-war idealism of R. Buckminster Fuller, cybernetics, and the design methods movement—and this historical contextualisation has an important place in art and design curricula. It can also help art and design educators better prepare for engagements with experts and allies from other disciplines, for example, by articulating how design

methodology employs abductive reasoning in response to complexity. In contrast with deductive reasoning (deducing a logical proposition from a general truth) and inductive reasoning (establishing general rules based on empirical evidence), abductive reasoning seeks to find possible solutions or responses to a given problem (Sanders & Stappers, 2012). This inherently pragmatist account of design also supports a media-agnostic approach to a possible solution, which in turn cuts across disciplinary silos. In this expanded sense, design can be reconceived as an activity already integrated in other disciplines. Richard Buchanan's seminal 1995 essay 'Wicked Problems in Design Thinking', for example, posited that "there is no area of contemporary life where design—the plan, project or working hypothesis which constitutes the intention in intentional operations—is not a significant factor in shaping human experience. Design even extends into the core of traditional scientific activities, where it is employed to cultivate the subject matters that are the focus of scientific curiosity" (Buchanan, 1995, p. 8).

CONCLUSION
Art and design education is in flux, moving away from a "factory approach" (Lindgren, 2020) and towards more integrated, social participatory approaches focused on real-world problems. While some seek to codify disciplinary practices and entrench disciplinary boundaries as a way to shore up the academic importance of art and design, the argument here is that the urgency and complexity of environmental challenges requires a meta-level, transdisciplinary approach. The practice-based, studio-located and imaginative approaches of art and design education are well situated to both support and lead pedagogy in other fields.

Biography
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Integration of Theory and Practice in Design Education as a Facilitator for Bringing Environmental Issues into the Curriculum

ABBIE VICKRESS & SAKIS KYRATZIS

Education has an important role to play in raising awareness and suggesting responses to the environmental crisis, not to mention in assuming its own responsibility. Papanek (1971) early on pointed out how designers and design education are contributing to the environmental crisis. Since then, many design programmes, especially in product design and architecture, have incorporated environmental concerns in their curriculum (Bras, 1997; Walker & Nielsen, 1998; Giard & Schneiderman, 2017). Unfortunately, Benson's (2007) prediction that "teaching sustainability [...] will soon become a necessary component to each and every graphic design academic unit, and eventually, such teaching methods will completely change the way we design the objects in our world" did not materialise and graphic design degrees are lagging in addressing sustainability in their curricula. It is through programmes like Plastic Justice—generating teaching guidelines and policies—that we can implement curriculum change in communication design degrees. This chapter puts forward a suggestion of how this can be done. Its main argument is that true integration of theory and practice in any design programme can create a platform that facilitates the discussion and exploration through thinking and making of issues of social responsibility, one of which is sustainability.

A short overview of what theory means and how it is addressed in design curricula shows that its position is problematic (Kill, 2006; Apps & Mamchur, 2009). Especially in the UK, most design degrees at university level have been developed from vocational training that focused on (and valued) technical skills. As a result, theory is seen as a secondary and perhaps unnecessary element of the degree. Connected to this, not all teaching staff feel equipped to teach and evaluate theoretical skills. This results in an inherent (and latent) anti-intellectualism in some design programmes where training for employability is seen as the main objective. As a result, theory teaching is usually done outside the studio.

Moreover, what theory is for the graphic design curriculum remains largely undefined, and it is also associated almost solely with essays as the means of assessment.

Connected to this is the overall perception that students who choose visual programmes prioritise practical methods in their learning. This means that most current design education assumes a particular learner that is kinaesthetic (for instance, McCauley & Roxburgh, 2017, p. 174, suppose that design students have a "predilection for learning by doing") and uses this as the reason for keeping theory away from the studio, since it is believed that thinking and writing disadvantages such students (these are seen as different processes from making; see, for instance, Orr & Blythman, 2002; Gelmez & Bagli, 2018). Even in universities like University of the Arts London (UAL), where there is a drive to integrate theory and practice across all subjects, this is interpreted differently in all its colleges. Some, like London College of Communication (LCC), have an independent theory unit that services several degrees and disciplines; other colleges, like Central Saint Martins (CSM) and Camberwell, Chelsea, Wimbledon (CCW), encourage each programme to move away from a curriculum structure with discrete theoretical strands and to incorporate theory in each unit or module. Even now, however, there is talk of theory-heavy and design-heavy units, so integration of the two is not yet complete. This results in students not appreciating how contextual discussions can enrich their work. Consequently, introducing environmental issues into the curriculum becomes particularly difficult, because their complexity and cross-disciplinary nature depend on a contextual elaboration.

We are more in line with Cross (2001, p. 5), who argues for design to "develop domain-independent approaches to theory and research" connected to what he calls 'designerly' ways of knowing. This moves theory away from its meaning-laden past, since it creates a version that belongs solely to design. This in turn allows for what Strickler (1998, p. 38) calls an "empirical bridge between theory and practice" and the development of communication design as an independent discipline (rather than a vocation). In such an environment, it becomes easier to explore and develop the social consciousness of the graphic design student. As Vessella and McKay (2011, p. 473) have shown, it is only within a design degree that has social responsibility at the core of its

curriculum that students realise that "designers' decisions have an impact on the planet, and understanding that impact and accepting responsibility for one's actions contributes to the moral and ethical condition of the educated professional. This pedagogy informs the students that civic engagement has come to embrace principles of sustainability as well as social justice." Such discussions and realisations can only happen effectively within the studio, which then becomes the place of both theoretical and technical exploration, where one informs the other. In addition, students are given the opportunity to explore their own personal values within the curriculum and to connect them with wider political issues, thus giving their work social purpose and intent (such an approach has been applied successfully by Benson and Napier (2012).

If theory is expelled from the studio, then so is sustainability: without a contextual and theoretical understanding of a design problem, we argue, studio practice becomes limited to form-making. Surveys of how design degrees address environmental issues (mainly in the United States; see, for instance, Benson, 2007; Benson & Napier, 2012; Giard & Schneiderman, 2017) show that sustainability is still not integrated in the curriculum. Students either have to enrol in units taught on a separate degree or choose incidental units within their degree that simply include briefs that address environmental issues (the brief that we discuss below belongs in this latter category). Moreover, just like theory, there is no clear agreement on what sustainability means within a design degree. The usual approach for graphic design programmes is to consider the life cycle of materials used, primarily paper and ink (Benson, 2007). Simply recycling materials in the studio may be a good start, but as McDonough and Braungart (2002) have convincingly shown, we need to move away from recycling as a panacea for sustainability. When it comes to design education, we agree with Giard and Schneiderman's (2017, p. 172) conclusion that sustainability needs to be considered as a "prime and fundamental factor in design education, much like less-is-more became a prime factor at the Bauhaus. In such a scenario, sustainability will need to be integrated throughout

the design curriculum and embedded at every level." In what follows, we present the *Classroom* brief as a good example of how theory and practice in the studio can facilitate students to explore their own values in relation to their practice. This primes them for socially responsible design and outcomes that are sustainable (apart from socially just, inclusive, etc.). We also make a case that briefs like this, which question (design) education itself and how it (dis)advantages certain learning styles (Fleming & Mills, 1992; Honey & Mumford, 1992), lead the way for a more inclusive design curriculum based on true integration of theory and practice in the studio.

METHODS & CASE STUDIES

Classroom is an Experience and Environment brief on the CSM Graphic Communication Design BA at UAL. Positioned alongside *Museum* and *Archive*, these briefs were designed to encourage students to use theory and practice to critique and challenge dominant conventions within cultural institutions. The 'environment' label of this elective study platform is somewhat self-explanatory; however, the 'experience' label is inspired by the definition from the author of *Brave New World*, Aldous Huxley: "Experience is not what happens to you. It's what you do with what happens to you" (cited in Kegan, 1994, p. 11).

Classroom encourages the use of graphic communication design tools to interrogate the educational contexts from which students have come and where they are currently, making connections and comparisons to institutional education and activism. The students are then prompted to collectively critique and redesign their classroom for the project duration. As Illich (1973, p. 11) advocates, "People need not only to obtain things, they need above all the freedom to make things among which they can live, to give shape to them according to their own tastes, and to put them to use in caring for and about others," including the way in which people are educated.

Experimental in nature, the brief redesigns itself every year. In 2020 the *Classroom* brief joined forces with the Plastic Justice project and became *The Climate Classroom*. Regardless of each iteration, there are always three consis-

tent threads to the project: contribute something to the 'rulebook' in which the learning environment is informed; learn something new through graphic communication design methods; and teach something new through graphic communication design methods. In addition to this, each year there are five factors embedded within this brief that champion the integration of theory and practice as a means for student agency, bringing social responsibility into the studio environment.

FACTOR 01:
VISIBILITY OF THE COLLABORATION

At CSM we have capacity to host a 'theory tutor' and 'practice tutor' (as per our job descriptions) within the same classroom, during the same session. This immediately highlights to students how these binary definitions are somewhat problematic in both a design and educational context. The theory tutor has a practice, and the practice tutor uses theory. By inhabiting a physical space collaboratively, the tutors enable students to witness both how theory and practice thrive off one another in social responsibility-based dialogue, and how the two are inexplicitly linked regardless of curricula structures. The importance of being in a physical space and viewing a collaboration taking place in a shared environment was only exaggerated when limited access to physical spaces became an issue during pandemic lockdowns.

As educators, we are aware that this relationship between theory and practice is a form of generative design research, an iterative design process that requires continuous reflection and development. Sanders and Stappers (2014, p. 8) state that "generative design research gives people a language with which they can express their ideas and dreams for future experience. These ideas and dreams can, in turn, inform and inspire other stakeholders in the design and development process," suggesting that this collaboration will not only help educators and students, but hopefully also the system in which education is situated in UK HE (Higher Education).

FACTOR 02:
OPEN BRIEF

The second factor, and perhaps one of the most important, is that this brief is open. By this we mean that students use their own experiences to research theories and inform definitions, which in turn determine a relevant format for their work. This relevance comes both from the theory and content, but also from who they are as a person and practitioner. As a result, outcomes frequently fall into an expanded definition of graphic communication design, another way in which students are encouraged to challenge dominant conventions. In 2020, outcomes included publications, animations, and information graphics on topics including the creation of bioplastics, darning for repair, and how to grow your own mushrooms. This open brief is designed to support Freire's (1970, p. 75) discrediting of the banking concept in education—the oppressive 'depositing' of information by teachers to their students—and to strengthen its connection to critical pedagogy as well as social justice education.

"Implicit in the banking concept is the assumption of a dichotomy between human beings and the world: a person is merely in the world, not with the world or with others; the individual is a spectator, not re-creator. In this view the person is not a conscious being (*corpo consciente*); [they are] rather the possessor of a consciousness: an empty 'mind' passively open to the reception of deposits of reality from the world outside" (Freire, 1970, p. 75).

For educators, an open brief is an essential tool to take stock of what students are bringing to the classroom, enabling us to facilitate a learning environment in which students can continue to build on their previous experiences, and, as Sanders and Stappers (2014, p. 15) argue, "People are particularly creative with regard to experiences that they are passionate about, such as living, playing, learning and working." And with this agency, an understanding of their role in social responsibility, such as climate justice, begins to grow.

FACTOR 03:
MAKING CONNECTIONS

Embedding theory in a practice-based unit has consequences well beyond the project deadline. Manzini's *Dialogical Design and Design Culture* (2016) expands on the knowledge, values, and visions that emerge from student conversations occurring during design activities, and the conversations that take place in various design arenas during and following project completion. In line with Brown's (2005, pp. 119–139) theory of the Shadow Curriculum, students create projects and generate knowledge not required from the brief, often highlighting alternative ways to learn from their own education and apply this to future scenarios. For example, students involved in the 2020 edition of the brief have gone on to contribute important work for UAL's Climate Emergency Network, spoken at conferences such as *Entangled Futures*, have collaborated with CSM's print department on sustainable print and production, created catalogues to showcase others working in the field of environmental justice, designed accessible information graphics that deal with the immense scale of the issues of microplastics, and independently exhibited a series of speculative science-fiction scenarios where plastic was not invented, as a means to challenge the way in which others use material in their work. These opportunities for extensive discussion reiterate that, before being a technique, graphic communication design is a capacity for critical analysis and reflection (Manzini, 2016).

FACTOR 04:
DIALOGICAL PEDAGOGY

Students are prompted to critically interrogate sub-themes of climate justice in the brief, express and listen to multiple voices and points of view, and create respectful and equitable classroom relations. It is important that students understand that they themselves, and their projects, form a multiplicity of less complex, smaller-scale sub-issues than the climate emergency, a wicked problem defined by Rittel and Webber (1973) as "difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognise. Moreover, because of complex

interdependencies, the effort to solve one aspect of a wicked problem may reveal or create other problems."

Like all wicked problems, it is important to acknowledge the complexity of the world, and "rather than trying to control complexity through top-down command-and-control hierarchies," writes Green (2013), "social innovation shows us how to embrace complexity." The students achieve something bigger than themselves through conversations and collaborations within this brief and by spreading the complexity over the various nodes in the system (i.e., various students and projects in the class). "Likewise, given its origins and nature, design culture is not a single unit; in fact, we should speak of it as a plural entity that includes as many different cultures as there are arenas in which the question of design is investigated and discussed" (Manzini, 2016).

FACTOR 05:
STUDENT VOICE
It is important to acknowledge that this brief is positioned within an institutional context which has ramifications on a complete sense of freedom in the classroom. Framing the student as an individual, as opposed to part of a university agenda, is not a new concept, albeit arguably rare in mainstream education. *Classroom* focuses on learning how to learn, encouraging students to realise what their framework is through theory and practice, and not impose it on them with the structure or requirements of a brief. "If real learning, as I call it, involves a disruption of established states of pedagogical knowledge and practice through which learners are recognized but through which such recognition may also be constricting, then a pedagogy commensurate with such disruption is required, a pedagogy which I call pedagogy against the state, or perhaps, pedagogy of the event, in order to expand our grasp of what it is to learn and lead to the possibility of forming new and more effective learning communities" (Atkinson, 2006, pp. 16–27).

WORKSHOP CASE STUDY 1:
IKEA FLATPACK FURNITURE
IKEA Flatpack Furniture is an example of a *Classroom* studio workshop using theory and practice. Students are sorted into learning groups via a VARK questionnaire (Fleming & Mills, 1992) and set about assembling flatpack furniture in their questionnaire groups: visual learners, aural learners, reading and writing learners, and kinaesthetic learners. On completion, students are asked to discuss their experiences of the collaboration and are shown documentary images of the activity taking place, thus revealing certain ways of thinking and making they may not have previously acknowledged.

As Whitehead (1967, pp. 91–101) states, "The task of a university is to weld together imagination and experience." So although this may seem a somewhat arbitrary exercise, the conversation that follows is what is most fruitful, resulting in learning that goes well beyond the brief requirements. It gives the students an opportunity to discuss their education biographies in relation to their learning styles. This discussion, together with the observations from the activity, is a true moment of realisation for many as to why they have previously felt disadvantaged in education. This leads to a questioning of education itself, including a critique of briefs that assume the students they are addressing are primarily kinaesthetic, as we mentioned in the introduction.

Please note, VARK is one of many learning style theories that exist, and we would highly recommend you complete this exercise in multiple ways to prompt a variety of different conversations, amending groups according to the learning style of choice.

FLATPACK FURNITURE

You will need: four pieces of identical IKEA flatpack furniture, tools for assembly, and a means to document the workshop (a camera is recommended).

1. Begin by asking students to complete the following question-naire: https://vark-learn.com/the-vark-questionnaire/
   Sort the students into groups based on their learning style results.
2. If multimodal, ask students to use their highest score or own preference to determine which group they will join.
3. Give the students a set time frame to assemble the furniture.
4. Document the assembly process and do not intervene.
5. Once the time is up, ask each group to reflect on how they worked together.
6. How did they organise themselves? Where did they sit/stand? Did they use instructions? Did they speak? Etc.
7. Show the students the documented images and prompt them to identify physical patterns in their behaviour.
8. Finally, discuss as a group whether the students were aware of this working process, and how this may have helped/hindered them in previous creative projects.
9. Finally, ask the students to give a brief overview of their education biography. What were their previous educational experiences like? Do they align or misalign from discoveries made during this exercise?

WORKSHOP CASE STUDY 2:
USER MAKER

User Maker is an example of a *Classroom* studio workshop using theory and practice. Students are asked to generate a prototype of their project—the term prototype being up for debate—and use intensive communication/speculative prompts to foster community relations and dialogical pedagogy in the classroom; a collaborative effort. Sanders and Stappers (2014, pp. 17–18) suggest that "prototypes made during the traditional design process represent objects as possible products… the languages that designers learn in school are specialised for the creation of such objects. For example [...] sketches, drawings, prototypes, and models of objects, often in isolation [...].

Some alternative embodiments for describing and enacting experience that are being explored today include stories, future scenarios, narratives, performance art, documentaries, and timelines of experience."

Students are paired up and asked to take the role of User (person interacting with the prototype) and Maker (person who created the prototype) and then swap, and repeat. Once complete, the students re-pair and complete another *User Maker* prompt with the same instructions. The list below features examples which can be amended depending on the nature of the project brief.

1. **User**, interact with the prototype.
   What does it 'do'? Does it 'work'? Is it 'finished'? What else needs to be done?
   Maker, no speaking. Make notes.
2. **User,** describe, out loud, what you are doing/thinking whilst you interact with the prototype—a user experience monologue.
   Maker, no speaking. Make notes.
3. **User,** describe the design decisions you see.
   What do they communicate? Are they 'appropriate'? To whom? How would you redesign this prototype?
   Maker, no speaking. Make notes.
4. **User,** describe the content.
   Is it interesting? Does it make sense? Does it align or challenge your own views? What would you add? What would you remove?
   Maker, no speaking. Make notes.
5. **User,** if the prototype featured in a story, what would its role be? What would the narrative be? Who would be the characters interacting with it?
   Maker, no speaking. Make notes.
6. **User,** if this prototype could be articulated through a physical gesture, what would that be?
   Maker, no speaking. Make notes.
7. **User,** how long would this prototype last in the hands of school children? Animals? Doctors? Builders? Parents? Exhibition visitors? Archivists? Etc.
   Maker, no speaking. Make notes.

8. **User,** what will happen to this prototype in 1 year? 10 years? 100 years?
    Maker, no speaking. Make notes.
9. **Maker,** present your project.
    User, the only question you can ask is 'Why?', but you can ask it as many times as you want.
    Feel free to interrupt the Maker at any point to ask why they have made a design decision.
    (The more interruptions the better!)

CONCLUSION

In what we have described above, we have shown that a true integration of theory and practice in the studio can create a platform that facilitates the introduction of elements of socially responsible design through student agency. For this to happen, we need to abandon models where theory and practice are taught separately in design education. As Manzini (2016) points out, echoing Walker & Nielsen's (1998) pedagogical proposal, such models related to a time where design education was training the 'expert' to produce specific 'products for serial production'. These days, Manzini goes on, "the focus of design has shifted away from 'objects' (meaning products, services, and systems) and toward 'ways of thinking and doing' (meaning methods, tools, approaches, and, as we will see, design cultures). In undergoing this shift, design becomes a means to tackle widely differing issues, adopting a human-centred approach: It shifts from traditional, product-oriented design processes to a process for designing solutions to complex and often intractable social, environmental, and even political problems." While Manzini's position implies a shift from outcomes to human-centred processes, ours also takes into account critical pedagogy and co-design (e.g., destabilising the tendency of designers to imagine a saviour role, or hands-off, lofty position as creative practitioner). This is why we are advocating for theory and practice to be used to address and discuss social responsibility in every design brief.

The five factors we described here can act as a blueprint for any design brief that merges theory and practice, but also for a curriculum that places social responsibility at its centre. The relationship between theory and practice can be used as a tool, both to empower your students and organically bring climate justice into the core of education. It is time for communication design to follow a more pedagogical model for sustainable design, moving away from outcomes and exploring wicked problems through a multiplicity of ideas, and through context and consequences.
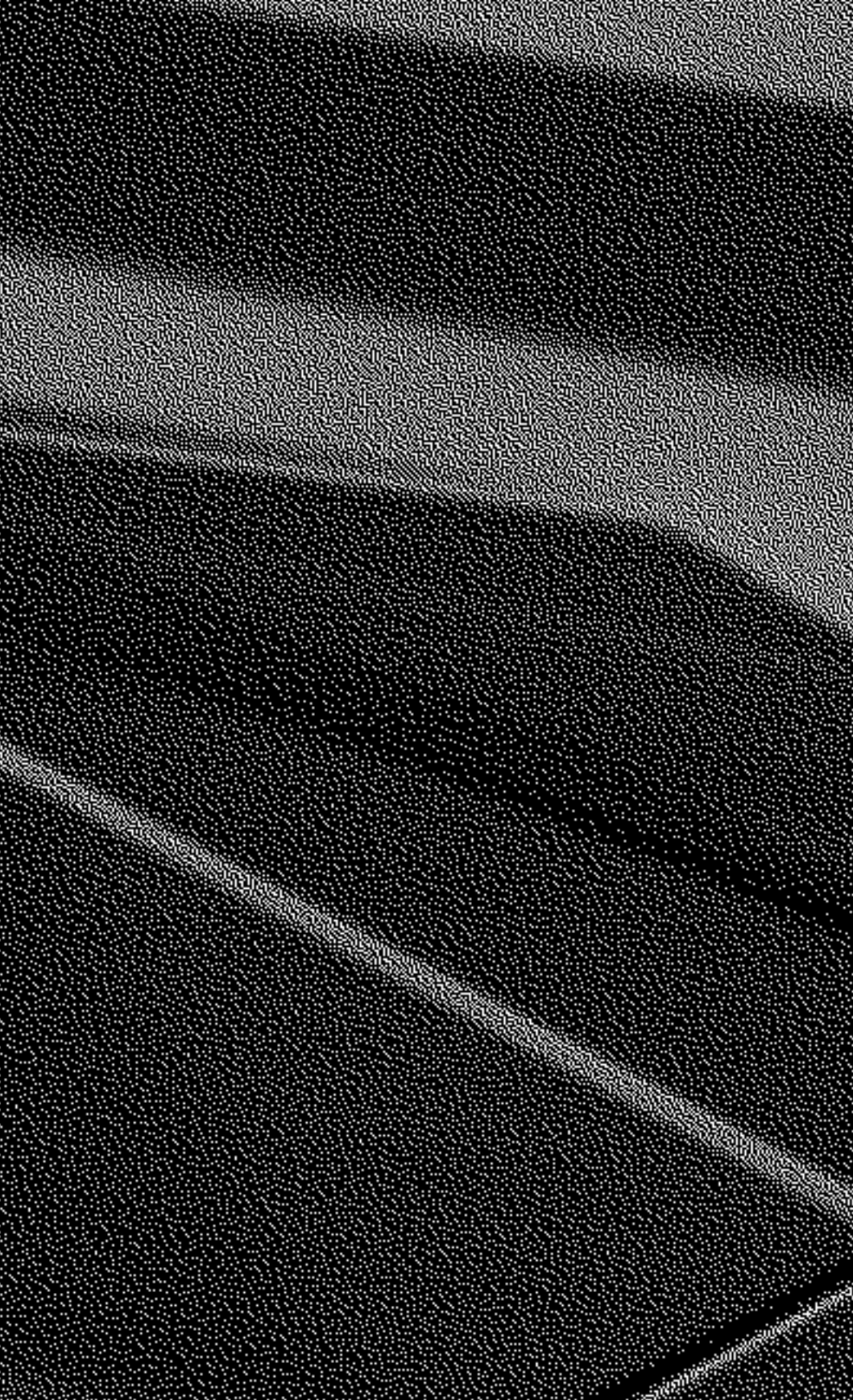
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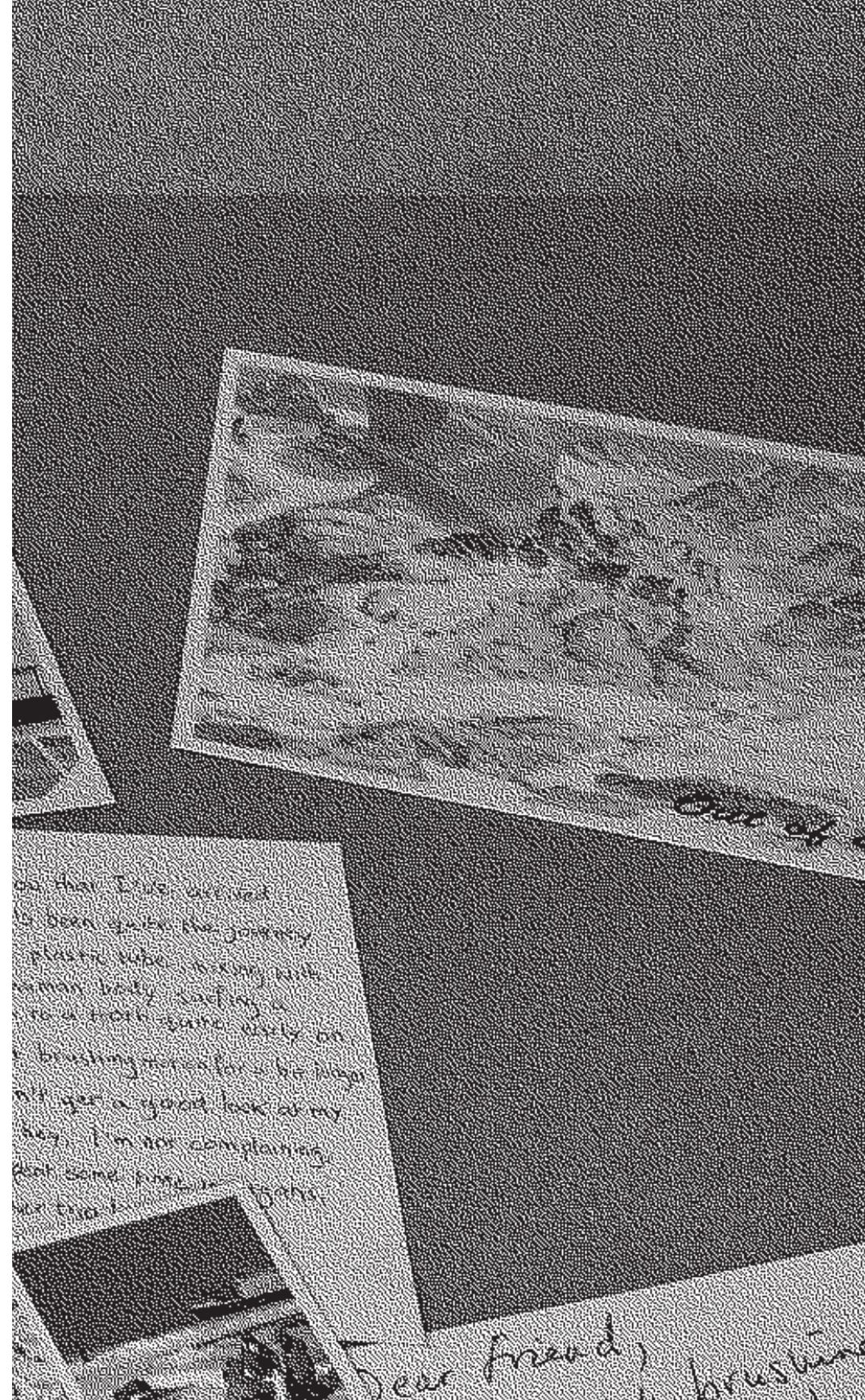
Student Outcomes
and
Student Reflections

Natalia Soto Ceballos
(Elisava)

I would like to continue with this project, as there's no information about the problem; you see the condition of the ecosystems and feel the need to show people what's happening. On the Colombian coast, there are towns covered in plastic, houses surrounded by plastics in water—there's no collection system. I made a dress that is modular, so if you get tired of it, you can continue it, make it into a bag or something else. I want to explore more ways of working with the material.

SOUVENIR FROM
THE COLOMBIAN COAST

Today, plastic pollution has become a serious threat to the environment and, as time goes by, this issue is becoming more and more frightening. This project focuses on the transformation of microplastics found all over the place, from beaches to the city. Being from the Colombian coast, Soto Ceballos cannot remember the last time she went to the beach and did not see any sort of pollution. Raised there, she spent most of her childhood collecting beautiful seashells as a hobby. As she became older, her hobby morphed to collecting and recycling plastic waste from the coast, hoping one day to return to her childhood hobby. As a small solution to help clean the ecosystem, she has decided to give these microplastics, found along the coast, a new life in the form of a dress. The project's focus is to bring to life and restore the ecosystem while also reactivating the economy of the towns directly affected. This piece and these types of projects provide people with direct and indirect work opportunities throughout the entire production process.

Talita Virgínia de Lima
(KABK)

I believe that language shapes reality, so understanding the new terms that were created to follow the pace of plastic pollution through language and image can be an effective educational strategy.

THE PLASTIVORE DICTIONARY

The Plastivore Dictionary is a series of typographic posters explaining and visualising a unified vocabulary to describe the new reality of ecological, chemical, and geological systems in the age of plastics. For this project, Talita Virgínia worked closely with postdoctoral research fellow Linsey Haram and her team, who wrote the article 'A Plasticene Lexicon' in 2019. Through a series of interviews, the lexicon was updated to include new, important terms used by the next generation of designers.

THE PLASTIVORE DICTIONARY

Libby Higgins
(UAL)

CLIMATE CLASS

I found the scale of where microplastics are found unimaginable. From being located in the soil, at the top of Mount Everest and the deepest parts of the ocean, to within the air, our food and drinking water, even human faeces. Dr Heather Leslie's question, "Are we all a little bit plastic inside?" rang as a wake-up call.

CLIMATE CLASS

Climate Class is a printed publication which catalogues the projects of 24 students who study across 9 courses at University of the Arts London. Each project responds to or shows an awareness of the climate crisis, identifying harmful behaviours, innovating more sustainable materials, and promoting education on ecological issues. Climate Class hopes to do as much question-raising as it does problem-solving. The book is a nod to the art students who acknowledge the significance of the changing ecological landscape in their practice, and a prompt to those who have yet to do this. The book is printed on Mohawk Options 100% PC White paper, manufactured using wind power and made with 100% post-consumer waste. The cover is printed on paper waste that has been saved from other projects printed in the CSM Publications Workshop.

Emilis Jonaitis
(Vilnius Academy of Arts)

I didn't know much about this plastic problem before Plastic Justice. I learned the most while doing the research for my thesis essay through collaboration with other students; for example, how microplastics are found in so many species and can get into humans.

THE INVISIBLE SIDE OF PLASTIC

Although the exact damage plastics cause to various organisms has not yet been fully investigated, annual research reveals new findings of concern. Plastic pollution is not only tangible debris but also invisible microscopic particles that are introduced to animals and our own bodies through air, water, the food chain, or even rain. The video project reveals an implied future with ominous means, in the hope that this is preventable. Therefore, innovative plastic alternatives from manufacturers and the reduction of plastic consumption by consumers should be expected.
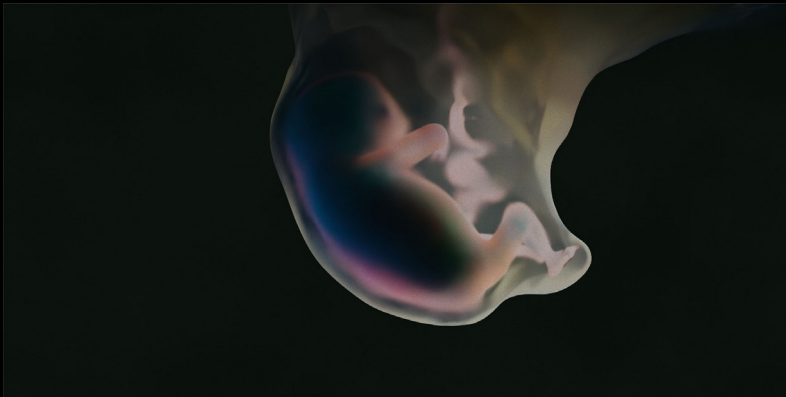
THE INVISIBLE SIDE OF PLASTIC

Sigrún Hanna
(Iceland University of the Arts)
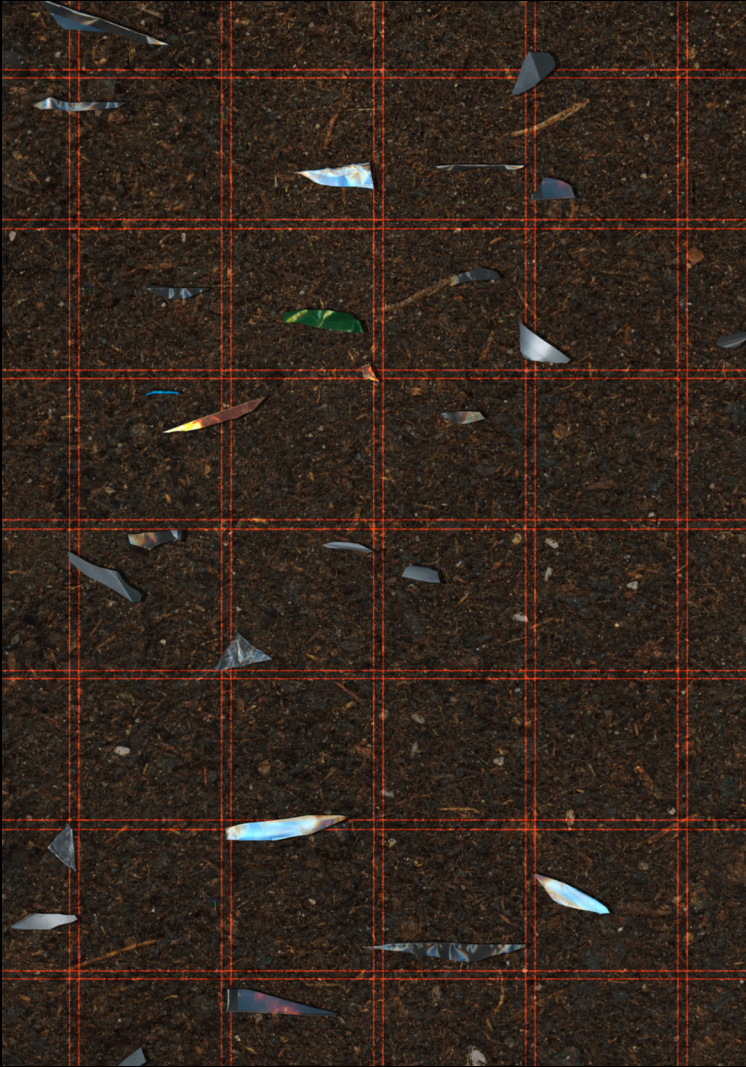
Before Plastic Justice, I didn't realise how big and complicated the issue of microplastics is. There are so many problems that scientists haven't found answers to yet on the actual impact microplastics have on the environment. I also thought it was interesting to hear that perhaps the solution to this problem isn't to eliminate microplastics from the environment, but to find ways to live with it and minimise further harm.

NO SOIL WITHOUT PLASTIC

Microplastics in soil is a growing issue that is often over-looked by the media. The consequences of their increasing presence in our ecosystem is still largely unknown, but scientists speculate on the possibility that they cause soil erosion. Vertebrates and other small organisms are eating microplastics, and while we still do not know if this is harmful for them on an individual level, we can confirm that plastic has entered the food chain and the water cycle. The prevalence of plastic in soil is such that scientists struggle to find control samples in order to test the effects of their presence. Until a solution is found, many questions might be left unanswered, and there are many burning issues. How will climate change affect how soil reacts to plastic? Could soil erosion be a consequence of the presence of microplastics? How will this affect plant performance and agriculture? As a society, as individuals, as industries, and as governments, we need to curb our consumption and re-evaluate our methods of disposal in order to mitigate the impact and attempt to give our scientists space for further research.

NO SOIL WITHOUT PLASTIC

Co-Production and Knowledge Exchange: Working with Experts

NIELS SCHRADER on Methods for Bringing Sociopolitical Challenges into the Design Academy

Q: Hi Niels, you've led a number of design education initiatives that focus on complex sociopolitical and environmental issues. Could you tell us a little bit about your motivation for bringing these challenges into the academy and how the Master of Non Linear Narrative developed at KABK?

At the Master of Non Linear Narrative, we aim to create a meeting ground between disciplines, a space of knowledge exchange and social encounter. The programme takes the entanglement of relations in the global information society as a starting point, in order to identify and interrogate complex sociopolitical issues and communicate them to a broad audience. The collaborations with external partners link the curriculum with real assignments from the professional field and foster the production of new knowledge by building bridges between disciplines.

Our mission is to connect the students to what is happening outside their personal bubble and for them to look beyond their immediate environment and experience. It is essential for them to develop a social and political understanding of their lived realities and experience a real-world application of academic research. The upcoming generation of designers needs to get a grasp of what's happening throughout the planet in order to take full advantage of the opportunities presented in an interconnected, globalised world.

Q: What are the common challenges that design students face when identifying and exploring complex sociopolitical issues? What methods have you developed to help them overcome these challenges?

Some students engage more easily with a topic outside their areas of interest than others. Some might have difficulties relating to the course deliverables, whilst others might find the subject simply overpowering. So with our partners we try to create a space that acknowledges uncertainty and complexity, and that allows students to explore the new unknown territories incrementally. To provide context, a collaboration starts usually with a general introduction to the topic. Here, the know-how of our partners functions as an immediate starting point for inquiry. In the course of the collaborative project, we include presentations of related cases, bring in external

65

expertise, and organise field trips. Students then become more and more familiar with the challenges, motivations, and opportunities of the research topic, and hopefully get involved with sources of information outside the academic context. The project is finally completed by disseminating the project outcomes to a non-academic audience.

Q: How do you go about finding and briefing experts who are willing and interested in sharing knowledge of their subject?

Finding a relevant research topic to look into is as easy as opening the most recent newspaper. Setting up the collaboration, however, takes a lot of time and effort. We start normally one year in advance with finding the right partner and identify if there is a match. The city of The Hague has a high density of international organisations, including a lot of governmental and non-governmental institutions. It is home to many different international judicial bodies, like the International Court of Justice and the International Criminal Court, and it houses major international organisations like OPCW (Organisation for the Prohibition of Chemical Weapons), Europol, and the European Patent Office, to name a few. In response, a lot of NGOs and activist groups settle in The Hague and make it a central place for political debate and decision-making. This creates a long list of potential partners to choose from. Fortunately, with an increasing amount of collaborations it becomes easier to convince new partners to commit their resources. In the end, our external partners profit from the knowledge exchange as much as education does.

Biography
Niels Schrader is head of the Master Non Linear Narrative (NLN) at the Royal Academy of Art (KABK), The Hague

3

21

5

were able to prevent
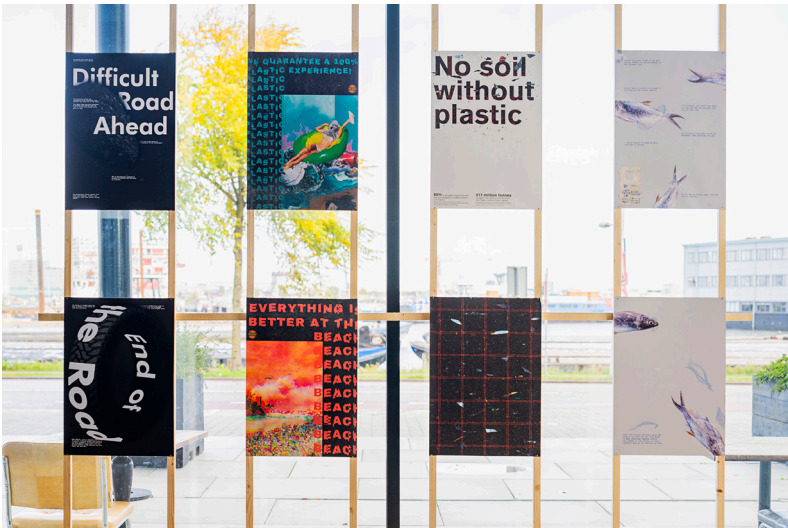the electronic waste send to Agbobloshie.

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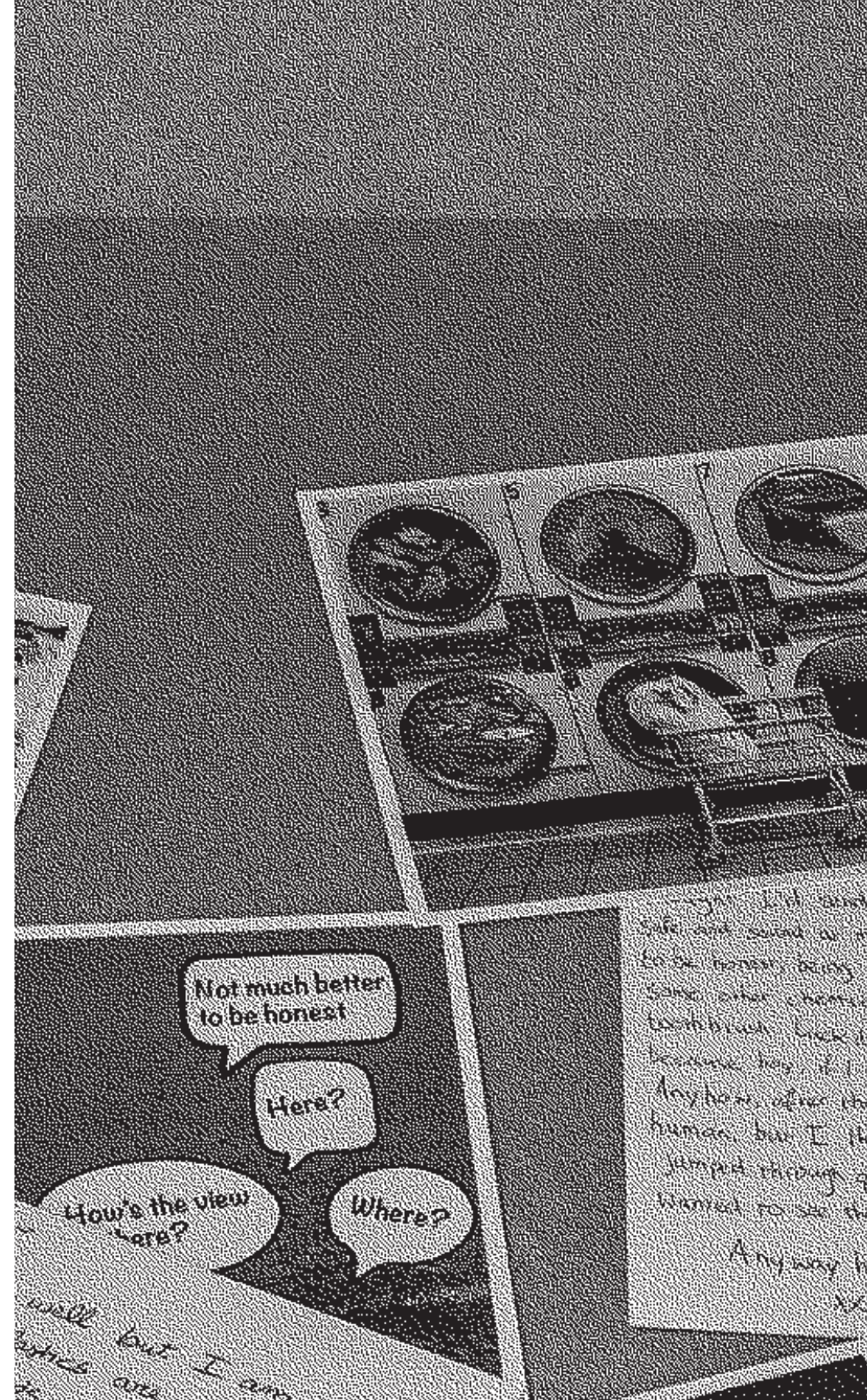
pp.72-81 Plastic Justice exhibition at the
Plastic Health Summit Amsterdam
October 2021. Photos by Roel Backaert.
www.plasticjustice.eu.

Activism
and
Policy Change

Students and teachers working on Plastic Justice have learned about, and worked with, the challenges that microplastics pose to our global commons. Because of the difficulties in addressing such issues and their global scale, the natural step is to try to engage more actors through activism and policy changes. Both these routes have their own characteristics, as we briefly describe in the following sections.

RAÚL GOÑI &
ISABEL ORDÓÑEZ

Activism at Schools for Behaviour Change

RAÚL GOÑI

Visual communication is a tool for transforming reality that allows us to give form to the denunciation and criticism of a given situation. It is part of the process, and not the end. Activist visual communication is transmitted through dissemination actions, and its purpose is to raise awareness and generate debates on problems that lead to action. These actions can be formalised through the publication of materials, talks, workshops, colloquia, and different counter-information and guerrilla actions such as: multiple names, fakes, subverting, image decay, textual poachers, sniping, and all kinds of critical artistic guerrilla tactics (Brünzels et al., 2000).

Graphic activism is included in Sharp's list of methods of non-violent persuasion and protest that he calls "communication with a wider public" and is constituted by different manifestations, such as "slogans, cartoons and symbols (written, painted, drawn, printed, gestured, spoken, or feigned), banners, posters, flyers, leaflets, books, newspapers and magazines" (Sharp, 2014, pp. 13–15). The motivation of the non-violent activist designer is the search for and construction of visual tools for social debates in an attempt to make causes visible and tangible (Manzini, 2015).

The nature of contemporary activism has a logic that is established along three lines: the sum of efforts, the constructive encounter between professionals and non-professionals driven by the idea of change, and the improvement of existing situations (Simon, 1996). We are interested in a possible definition of activist design, based on another one by Simon, as "the deliberate act of professional designers or others to move from an existing situation to a preferred one by applying design consciously or unconsciously" (Fuad-Luke, 2009, p. 5). The main function of activism is to mobilise and pressure industry, corporations, governments, or any kind of institution with power to change their agendas for the benefit of their various causes. All activism involves making visible the collective challenges of a group of people who share common purposes and solidarity, and managing the interactions they have with elites, opponents, and authorities (Tarrow, 2005).

Activist learning spaces, whether formal or informal, can be an ideal site for activism (Flood, Martin, & Dreher, 2013), producing knowledge to inform social change, conducting

research that promotes social change, promoting progressive teaching and learning strategies, and functioning as participatory sites that engage in public policy debates and keep alive a commitment to social and personal change. These activist practices can also be a destabilising form of the "uniformizing education system" (Freire, 2009, p. 71) that develops standardised competencies contrary to diversity.

Thus, building on the ideas of Ivan Illich (1971), who advocates a radical dismantling of the school system in all its institutionalised and oppressive forms, transpedagogy activates education in a process of self-selection and avoids elitist tendencies. Power becomes the ability to do something, and design empowers, makes visible, gives voice, allows proposals, and generates controversy, giving a channel to personal and group concerns. Bello (2018) approaches this transpedagogy as a possible set of knowledge that invites us to risk our epistemological certainties, to establish disturbing dialogues across differences, and to generate a political ethic capable of creating connection and recognition. We would like to imagine what this education would be like from a trans, popular, and transformative perspective.

The various ways of using interviews and interview techniques in such projects can serve as a sensitive way to engage actors in political and social struggles, build bridges within communities, and help people process their experiences in a more positive, affirmative way. The interview has great potential to unravel the "multi-layered links of global connectivity" (Castles, 2012, p. 36) when applied with dynamic reflection on the contextual connections, the role of the researcher and the interviewed, and the power of knowledge production. Interviews, often combined with various media formats, have been increasingly used as an advocacy tool, and as a first step towards collaborative research and knowledge co-production (Fedyuk & Zentai, 2018).

It seems pertinent to rethink ways of teaching, to move away from an academy that stigmatises and standardises the proposals and outcomes of activist visual communication. All the main thinkers, as far as creative pedagogy is concerned (such as creative philosophers), seem to recognise an organic relationship between the universe, the community, and

LEARNING
Leading Learner
vs. Teacher

DISSEMINATION
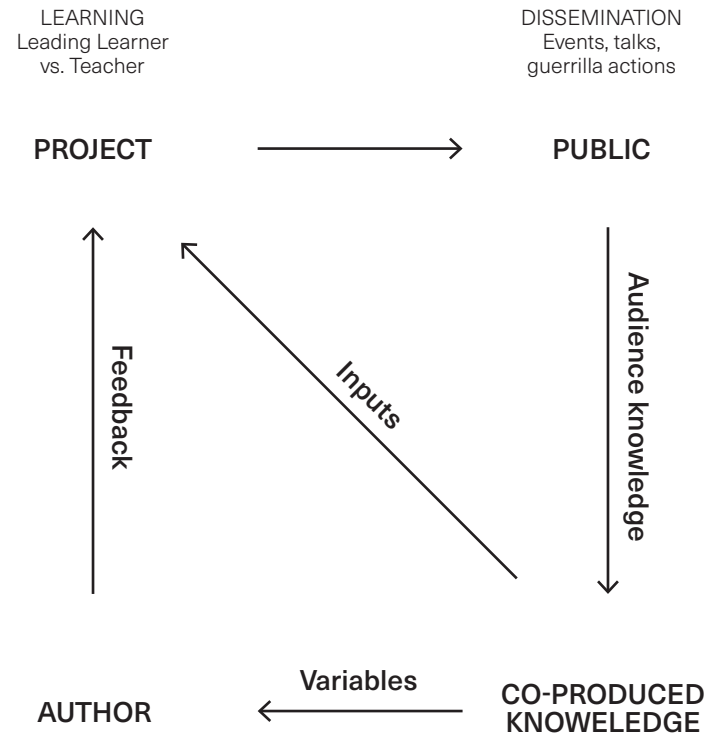Events, talks,
guerrilla actions

Figure 1. Co-production of Knowledge, R. Goñi (2022)

individuality. The classical profile of the teacher must be skipped and replaced by a leading learner in a process that goes from the part to the whole, and in which guiding is replaced by participating (Lutters, 2020 ; see fig. 1).

Jeroen Lutters's proposal could be a beginning of reflection towards other pedagogical systems based on a new creative paradigm that stimulates evolution. The *No School* movement is visualised in a triangulation: (1) *No School* as a cooperative form of education—as an answer to counteract late-capitalist competitive forms of education; (2) *No School* as an ecocentric and creative perspective on education—as an answer to an anthropocentric definition of creativity; (3) *No School* as a non-reductionist form of learning—as an answer to outdated reductionist educational models of teaching.

Idealism is the new realism. It is time to act.

How to Influence Policy 101

Anyone who wishes to influence their local or regional policy will need to reach out to their relevant policymakers. For that, a well-documented approach is to make a policy brief. There are plenty of online guides and templates for policy briefs, and the policy brief is considered to be a key tool by a majority of policy actors (French-Constant, 2014).

Policy briefs are short, to-the-point, jargon-free documents written for non-specialists, presenting research and/or project findings to policy actors, and offering recommendations for change (Research to Action, n.d.). Content-wise, a policy brief represents the most simplified outcome of a project or research which is relevant for specific policy changes. A successful policy brief has therefore three main challenges:

1. To extract the most important results of often long and complicated research projects;
2. To understand the current policy scenario related to those results;
3. To identify relevant policy actors to whom their message should be directed.

Of the three challenges identified, perhaps the most easily tackled from an art and design education perspective is that of distilling important research results into a simple, jargon-free summary. The Plastic Justice project is, in a way, dedicated to communicating the issue with microplastics beyond the scientific communities that work with this topic. During the project, teachers and students of art and design programmes learned about and worked with this topic, moving it beyond the usual channels in which it is conventionally discussed. Therefore, it makes sense that the project participants also help to formulate a summarised version of the research in this field, as they have understood it.

In order to better communicate research project results, several science communication tools exist. One such tool is the Message Box, developed by COMPASS Science Communication, Inc. (fig. 2). It is simple to understand, yet a powerful tool to help target messages to specific audiences (COMPASS, 2017).

ISABEL ORDÓÑEZ

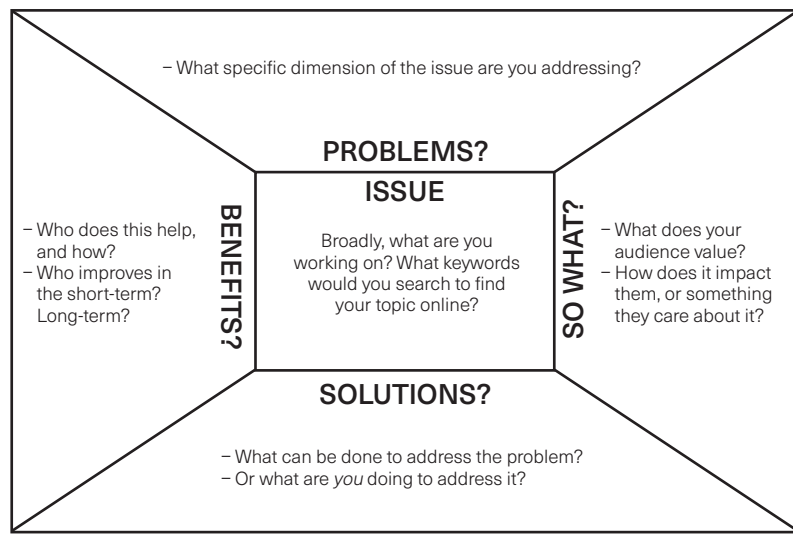AUDIENCE Who is impacted by this? Who can change this? Who cares about this?

– What specific dimension of the issue are you addressing?

PROBLEMS?

BENEFITS?

– Who does this help, and how?
– Who improves in the short-term? Long-term?

ISSUE

Broadly, what are you working on? What keywords would you search to find your topic online?

SO WHAT?

– What does your audience value?
– How does it impact them, or something they care about it?

SOLUTIONS?

– What can be done to address the problem?
– Or what are *you* doing to address it?

Figure 2. Message Box, COMPASS, 2017

The second and third challenges for a successful policy brief are closely related and have more to do with being familiar with how policy is developed and implemented. Understanding the existing policy scenario around the topic that is going to be addressed in the brief will help you identify the key policy actors that your brief should address. Since this is quite specific and will vary depending on the topic you have chosen to address, the Plastic Justice project team suggests consulting with policy or environmental policy experts. To identify experts relevant to the more targeted environmental issue, an initial literature review should be carried out to find policy that refers to the topic in the desired region and specific locations. Such a literature review will help identify current policies that affect the topic of interest and hopefully also guide the group in identifying who their policy brief should address.

Given that policy briefs are not a topic commonly addressed by art and design schools, and the political system is often misunderstood or even mostly unknown to the general public, the second learning activity of the Plastic Justice project (which took place in April 2022) focused specifically on these themes. The activity involved the participating students in addressing the first challenge mentioned above (i.e., extracting a relevant message). The project partners were accompanied by Dr Esther Kentin, an expert on EU environmental law around microplastics, who helped introduce the participants into the world of environmental law. With her input and orientation, students worked in international groups to identify project results or themes that they considered important to highlight and communicate further. With those themes selected, the students were asked to fill out a Message Box to clearly state the issue, what problems it brings, why it is important, and what solutions are proposed. Some results were targeting a clear audience, and some addressed an issue that is currently not regulated with microplastics in consideration, providing a good base to further develop relevant policy briefs. Regardless of the relevance or feasibility of using the resulting Message Boxes to develop policy briefs, or if such briefs would eventually be relevant for future policymaking, the learning activity managed to introduce art and design students (and teachers) to the often-distant world of policymaking.

Biographies

Isabel Ordóñez is an industrial designer, teacher, and researcher at Elisava Barcelona School of Design and Engineering

Raúl Goñi is head of Interactive Experiences, Bachelor Degree in Design at Elisava Barcelona School of Design and Engineering

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Guidelines for Teachers

– Introduce open briefs. When students are given agency, project outcomes impact their whole creative practice, well beyond the deadline.

– Embed theory into the studio/practical sessions. Social responsibility cannot exist without a level of critical underpinning.

– Organise field trips. Students tend to start researching environmental topics using a computer.

– Find experts. Environmental problems are by nature interdisciplinary. In the classroom, design students learn how to listen to expert perspectives and translate their knowledge into visual, accessible form. Experts can also help raise the stakes in the classroom, inspiring in students a sense of relevance and urgency in their work.

– Assist and empower students to independently connect with local and/or accessible NGOs, organisations, or individuals. When students are able to address their own questions to experts of their choice, the learning process is powerful.

– Document all talks and input from invited guests and make the collected records and information open and publicly accessible. Navigating complex topics requires time and consistency.

– Climate change is a global challenge. Be sure to include voices from the Global South.

– Carrying out interviews and observation work with those affected by plastic waste generates a type of bottom-up knowledge that makes visible the voices of those outside the academy and co-produces valuable knowledge.

– Provide tools to help students visualise/organise the complexity they investigate. Sometimes asking them to generate mind maps early on can help them keep tabs on all the information they will encounter, and look for logical structures to organise it. This enables them to see the relationships between the different parts of the 'puzzle'.

– Using the body and physical action in research processes can improve understanding and perception of the topics to be investigated.

– Explaining the decision-making and the vulnerability of the researcher reinforces the idea that research processes are flexible, and to not take anything for granted or as finalised.
– Environmental challenges can be overwhelming and daunting. Rather than having them feel anxious about the terrible damage done, remind students that these effects are the results of decisions that can be reverted. There is no hope without action and proposal for change.
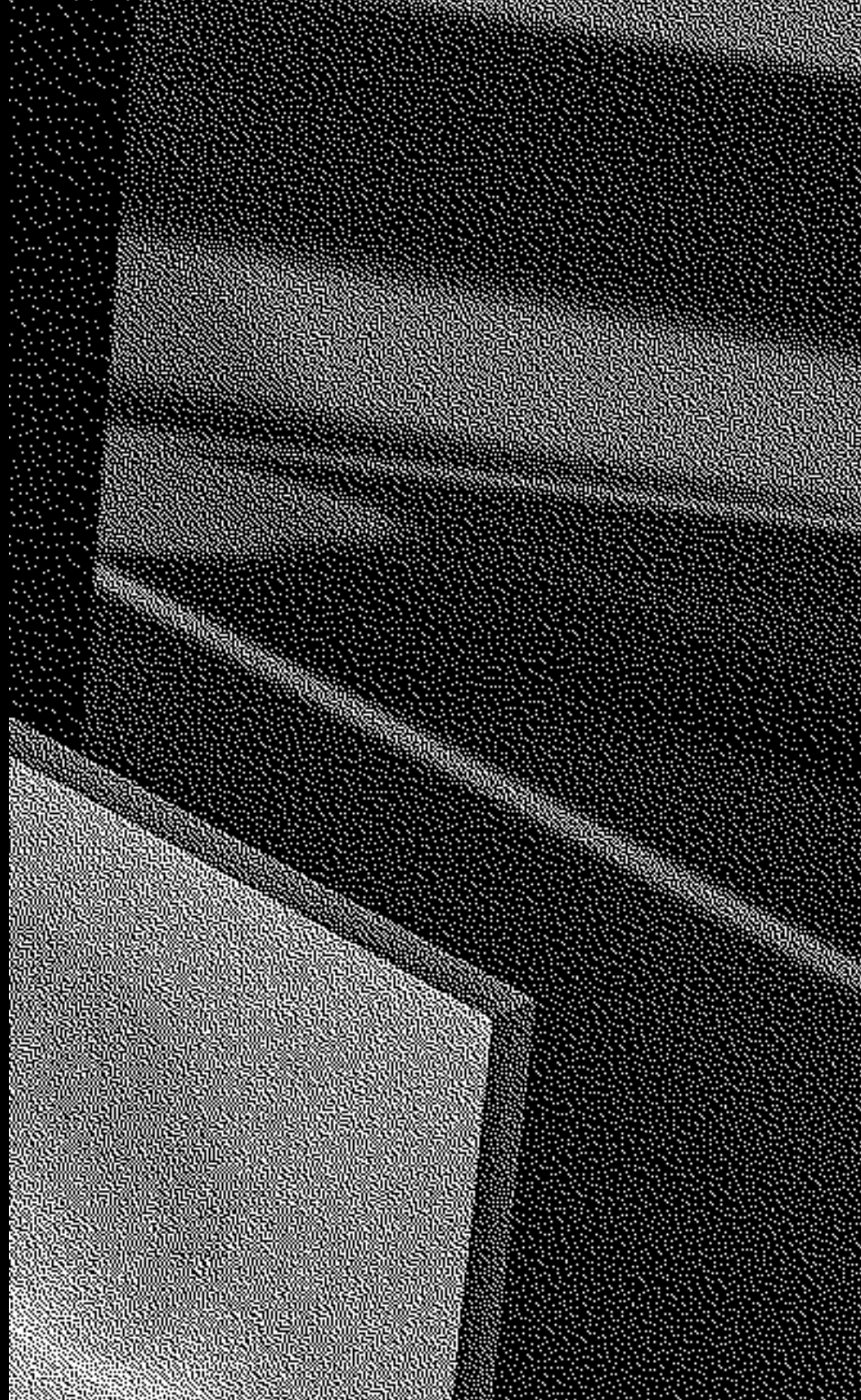
Coconuts in Plastic

Social Entrepreneur Ama van Dantzig Unpacks the "Nowness" of Colonialism

DERVILLE QUIGLEY

Last week in the supermarket, Ama van Dantzig spotted a coconut wrapped in plastic.

"What possible need would there be to wrap a coconut in plastic?" she asks. "Doesn't it already have the most amazing shell?"

I wholeheartedly agree.

Ama was born in Ghana and now lives in the Netherlands. Her father, who has since passed away, was Dutch, and her mother is Ghanaian.

"I always find this relevant to say, because this type of background comes with certain difficulties. It is very privileged, because you have access to these opposing worlds, but also problematic, because you don't really belong anywhere. However, this gives a lot of opportunities to ask questions, because you belong nowhere and everywhere at the same time."

We had arranged to meet online to discuss the problem of plastic and the role of higher education in art and design. I should also state my positionality regarding this interview, project, and meeting. My name is Derville Quigley, and I am the communications manager at ELIA, a European network of art schools with over 260 members. ELIA is a partner in the Plastic Justice project. I was born in Ireland to Irish parents and now live in the Netherlands. Both Ama and I understand the power of stories and narratives.

As a creative strategist and systems thinker, Ama divides her time between Ghana and the Netherlands, building bridges between seemingly opposite worlds. Over ten years ago, she and a colleague set up Dr. Monk, a social innovation organisation, to look at environmental situations from a historical perspective and to study how inequality is created and how this links to sustainability. "It was a choice to stay uncomfortable for a very long time."

In conversation, she describes an international environmental movement in the Netherlands that, knowingly or not, employs a particular framework defining what problems we should solve and the solutions to these problems. I sense her frustration.

"Often, we are not aware that the framing of the problem and set of solutions is very much from our lived experi-

ence here in the West. It cuts out the realities of a vast majority of people who work hard and barely earn a living wage. These people make life comfortable, wealthy, and wonderful for us. However, their perspectives are not taken into account."

In 2021, as part of the Plastic Justice Expert Day, Ama gave an online lecture on 'Colonialism and Plastic Waste'. She talked about the 'nowness' of colonialism—extraction, dominance, dumping, and poverty. She asks, "What is plastic? It's processed oil. Where are the places that oil comes from, and how are those places doing?"

She urges me to look at the Niger Delta in Nigeria, where entire ecosystems are polluted in pursuit of profit.

"I don't think the lives of the local people have improved much, yet oil companies continue to pump oil for fuel, but also for plastic."

Ama believes 'it starts in the mind'. "It starts with values, our ideas of who we are and how we relate to each other. These shape our behaviour."

She explains how Ghana is famous for being one of the most polluted places on Earth.

"We have what is often referred to in the media as the biggest electronic waste dump in the world. This is a place where a lot of people live and work, processing, organising, and even fixing what we throw away in the West." She is talking about Agbogbloshie, located in the heart of Accra, Ghana's capital.

"I think language is fundamental," she affirms. "How we describe things is part of these systems of coloniality. So it's a waste dump. If it's a dump, it has no value. All the electronic phones, our old laptops, are dumped there with little infrastructure to process this waste. These are all goods, all solutions, all products designed by someone. I wonder what would change if the designers knew this would happen to their ideas that became a product, that became trash. Would the designer care? Would they have been taught to care?"

Ama describes how this is a place where many displaced people work. "They are migrants, often from the north of the country, an area affected by drought. Now they work in a waste dump."

She points out other, lesser-told stories, those of children who live there and have never been to school, who can make a speaker or repair a kettle. "They understand how these things work in a way that a lot of us don't. We are too busy throwing things away. In our consumption, we extract, exclude, and dump."

If you change the frame, then the discussion around the environment is not only about recycling, upcycling, and circular economies but also about social and historical justice and global citizenship.

Ama is extremely conscious of the choices made in the telling of these problematic situations. She is keen to point out several narratives at play or in conflict at the same time. This highly observant trait could be traced back to her childhood. She remembers when she was fourteen and accompanying her father, a Dutch academic who was studying the period in which Europe bought, kidnapped, and enslaved people. European transactions on the African coast.

Together, they explored the myriad of Ghanaian forts and castles still there today—unforgettable reminders of Europe's dark past. Places like Cape Coast Castle, at which, in the 1700s, up to 1,500 enslaved people were kept at any one time in dank, poorly ventilated dungeons with no space to lie down and no water or sanitation. The floor was littered with human waste.

As well as hearing stories of extreme hardship, she learned how various people, especially on the coast, resisted the Europeans. While her father continued his research, Ama played on the castle grounds. It was there she noticed very sad-looking people wandering around, those who had come back to visit—African Americans, black people from the African diaspora.

"I couldn't understand their sadness, because the people living outside the forts, in the surrounding communities, had less than them. Many locals didn't have access to the wider world, but yet it was those from afar who could fly across the Atlantic to visit who were sad."

I could see her grappling with the remnants of these memories. "They were sad because of what had happened to their ancestors and how these events affected them today."

She contemplates the removal and dehumanisation of people and how this relates to the concepts of extraction and exploitation that create wealth. "Whole communities, cultures, and ecosystems destroyed. What, then, is wealth, if this is what it costs?"

Such relationships have always fascinated her. "How did we create them? How did they become so fundamentally destructive? What can come of them now? Those structures are still there. We are still telling those stories. We are still trying to come to terms with what happened."

After a solemn moment of mutual reflection, we think about the future and the role of art and design schools and students. It feels as if we've travelled quite a distance together. Suddenly, her face lights up.

"I really think that arts and creative spaces are essential in imagining alternatives. This might seem dreamy, but we need those dreams and ideas. We need people to try things out and experiment. People who dare to ask questions and who create. It could be beautiful, it could be horrific, but just the act of creating is powerful. We need spaces where it's okay to continue challenging each other conceptually to create—be it a narrative, performance, or product."

Artists like Aàdesokan, who explores waste identities, inspire Ama. "He makes me wonder about the ease with which goods and waste travel, while so many people are prevented from migrating freely. He also makes me wonder about how certain cultures and identities are being created around the processing of discarded items, waste."

She believes that it is essential to think about diversity and inclusion when thinking about design. "It invites us to do something way broader and more imaginative." Recently, she listened to the Earth Charter podcast and learned that we can be "inclusive and generous or exclusive and extractive."

"Unfortunately, we seem to have a history of creating from the latter."

Despite this, Ama has high hopes for the future. She sees more attention being given to the concept of waste and the problem of plastic in art and design. Although she also wonders if her hopes are an expression of being an outsider. "Institutions are complex spaces as well. Solutions involve change."

I think back to the coconut she mentioned earlier. The fact that someone thought about how the plastic should wrap around its hairy exterior. Who or what was the plastic protecting? Why did a production line of people do this to a coconut? These questions make me uncomfortable.

Ama continues, explaining that artists and designers need to question the production. "Who are you working with? What types of relationships are you creating? Is everyone able to gain from the collaborations in which you engage? It's exciting for those in art and design spaces to ask these questions, because it will ultimately lead to the creation of a different world."

She smiles, with a glint in her eye.

"Perhaps a world without waste, a world in which people can move around freely. A world where we see and respect the humanity in each other. What a dream."

Biographies

Ama van Dantzig has an academic
background in International
Development Studies. Prior to setting
up Dr. Monk, she worked for the
National Commission for Sustainable
and International Development
(NCDO), raising awareness on
international development issues.
She was a representative of the Dutch
Gender platform at the United Nations
Commission on the Status of Women
and moved to Ghana as a sociocultural
entrepreneur working with civil society
in building various movements.

Derville Quigley is a writer and
communications manager at ELIA.
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Building a Common Understanding of the Ecocentric Paradigm within Arts Education

ÚNA HENRY

"There is tremendous work being done right across Europe to help children, young people and adults learn about and engage with climate change, biodiversity loss and sustainability. Our goal is to build on these efforts and to work closely with Member States to place sustainability at the heart of education and training systems. All learners, from an early age, need opportunities to understand and take action for environmental sustainability, to protect our planet and our future."

Mariya Gabriel, Commissioner for Innovation, Research, Culture, Education and Youth (European Commission, 2022a)

As humans, we have initiated detrimental and dangerous changes to the delicate balance of Earth's ecology through the continuous capitalist extraction of resources, toxic waste dumping, and unmitigated carbon emissions freely flowing into our atmosphere, which has catastrophic consequences for all life in our natural world. Our systems of governance and thinking are geared to the short term, with relinquished moral and ethical responsibility for the long-term protection and care of our planet. The world's population is now 7.4 billion, heading towards 11 billion in 2100 (according to the 2019 UN Population Report), and our material needs are higher than ever before. There is an urgent requisite for changes of governance, economy, and education to curb the dangerous threat to our common future, which is both social and environmental. Our economy, consumption habits, continued colonisation, governance, distribution of wealth, and the practice of democracy will have to transform if we are to honour our responsibility as the caretakers of this beautiful world and its environment for future generations to come. As a productive link to the toxic ramifications of plastic production and pollution, as well as the destabilisation of our environmental commons, the Plastic Justice project concerns the long-term economic and social implications sustaining this crisis and provides a necessary call to action that is located within arts pedagogy and policymaking.

EVALUATING PLASTIC JUSTICE:
SUPPORTING EDUCATION FOR SUSTAINABILITY,
EU SUSTAINABILITY COMPETENCY FRAMEWORK

"Youth participation has been revolutionising the way we look at climate and the environment. Through our youth programmes, European Solidarity Corps and DiscoverEU, we promote the sustainability drive involving our youth. This is a step further in the work towards a better integration of sustainability in education."

Margaritis Schinas, Vice-President for Promoting the
European Way of Life (European Commission, 2022a)

The European Commission calls for environmental sustainability to be at the core of EU education and training systems, with a focus on developing green competences and skills, future-oriented curricula, and planned approaches to sustainability by education providers. The development of a European sustainability competence framework is one of the policy actions set out in the European Green Deal as a catalyst to promote learning on environmental sustainability in the European Union. A new European competence framework on sustainability, published earlier this year by the European Commission Joint Research Centre (Bianchi et al., 2022), maps out the competences needed for the green transition, including critical thinking, initiative-taking, respecting nature, and understanding the impact everyday actions and decisions have on the environment and the global climate. Green-Comp is a reference framework that promotes sustainability competencies and supports the development of knowledge, skills, and attitudes to think, plan, and act with empathy, responsibility, and care for our planet, and to assess progress in supporting education for sustainability (see also European Commission, 2022b). The framework offers a wide range of purposes, including curricula review, design of teacher education programmes, (self) assessment/reflection, policy development, certification, assessment, monitoring, and evaluation. GreenComp comprises four interrelated competence areas: 'embodying sustainability values', 'embracing complexity in sustainability', 'envisioning sustainable futures',

and 'acting for sustainability'. Each area comprises three competences that are interlinked and equally important.

(1) EMBODYING
SUSTAINABILITY VALUES

– Valuing sustainability
– Supporting fairness
– Promoting nature

Madhuri Prabakar from the Plastic Soup Foundation recently advised us that 8 million tons of plastic enter the ocean every year, and it takes plastic 500–1000 years to disintegrate.

Plastic Justice is an arts pedagogical project that foregrounds an exigent ecocentric paradigm and collective reimagining to tackle the environmental crisis and the issue of plastic production and carcinogenic pollution that we find not only flowing and sedimented within the Earth's natural habitats and systems, but ingested, too—lodged and toxifying in our own bodies and in all animal life on Earth. Plastic Justice plays an important role in bringing together the voices of theorists, artists and designers, action groups, and scientists to address processes of resource production and extraction, extinction, colonisation, and climate change, reflecting the inescapably entangled accountabilities, agencies, and vulnerabilities that shape necessarily shared worlds where social justice topics, socio-economic issues, and an ethics of care and kinship foreground values required towards global equity and harmony between humans and the Earth's natural systems.

(2) EMBRACING COMPLEXITY
IN SUSTAINABILITY

– Systems thinking
– Critical thinking
– Problem framing

The Plastic Justice project centralises arts transformative practices in relation to priorities of international relevance, with a focus on transcultural issues and cross-disciplinary action. It questions our coexistence and inequity as existential urgencies of our time, where the ethics of careful attention to the lives and worlds of others is grounded in sustained conversation, critical thinking, and a diversity of other ways of knowing or unknowing and conviviality. Plastic Justice opens forms of learning that invite our community to ask questions, creating a safe space for risk and failure, empowering students to experiment, build and test, and rebuild new economic, administrative, communicative, educational, and art and design methods together, thought through 'deschooling' and the climate classroom. The project empowers students to use their imaginative agency to unbuild the world and to generate ethical and value-driven knowledge, using the power of art to envision another future capable of transforming the world we live in.

The staff training in Vilnius was an essential moment for the Plastic Justice colleagues to come together and establish a framework for the Teachers' Guide and to develop shared teaching methods to address issues of climate justice and microplastics, in particular for the art and design curriculum. Alongside the workshop activities, the programme included a field trip to Plasta, one of the largest plastic recycling companies in Eastern Europe.

(3) ENVISIONING SUSTAINABLE FUTURES

Competencies:
– Futures literacy
– Adaptability
– Exploratory thinking

Plastic Justice expands the fields of dialogue, developing relationships and bringing its research into communities and publics from different sections of society, linking this to social innovation, meaningful engagement, and knowledge creation, where we understand that research is a process of

investigation leading to new insights effectively shared. The Expert Day that took place at the KABK in The Hague was valuable to students, supporting the integration of studio work and theory to develop real-world projects, having gained access to the formidable expertise, resources, and networks of partners to further extend their knowledge and understanding of issues of plastic pollution from across a wide spectrum of social science research, from petromodernity and economic growth and wealth, to colonisation in the present and health.

During the Plastic Health Summit on 21 October 2021, students from The Hague, Reykjavík, Barcelona, London, and Vilnius presented a selection of their works in which they examined the impact of invisible microplastics on the environment (see pp. 72–81). Visitors to the conference at Theater Amsterdam included an international audience from NGOs, local government organisations, and scientists. The event was a great opportunity for students to have elaborate discussions with professionals from the field and receive first-hand knowledge from experts at the forefront of the fight against plastic pollution. The exhibition was a great success and showed the value of cross-academic exchange and field research promoting conscious design education. According to the Plastic Soup Foundation, the summit attracted some 250 visitors who were extremely enthusiastic about students engaging with such a complex topic.

(4) ACTING FOR SUSTAINABILITY

Competencies:
– Political agency
– Collective action
– Individual initiative

Through a complex web of socio-environmental relationships, ecological degradation is taking place at an unprecedented pace—to an extent that we have adversely changed the atmosphere, lands, forests, and waters of the planet, and the loss of species is forever. In recent decades, the Earth's resistance has become more apparent, evidenced tangibly in

the decline of species, gradually changing weather patterns, and slow but steadily rising sea levels, causing greater food shortages, poverty, migration, and inequity. Plastic Justice is a generative catalyst for co-research and action, where arts research intervenes and changes the way we see the world, the past, the present, and the world of the future. It is where we can negotiate knowledges acquired, along with and in relation to the specific present and the innate conditions of our lives that require wider disciplinary frameworks, such as economics, communication, technology, and science, to tackle this complexity. Whether our current lived conditions are economical or geographical, knowledge production through arts practices is also driven by subjectivity—our conscious personal experience that is shaped by thoughts and beliefs, and by extension, our own agency (i.e., the capacity to act in and care for the world, to create alternative forms of participation and making the world our own).

Part of the work Plastic Justice does through its climate classroom is to encourage students to take action and find their own agency, but at times the societal and ecological challenges seem so overwhelming—as if standing at a deep precipice and not knowing how to move to the other side— that the task itself can seem overwhelming as well. Withstanding this, how can we empower students to be the next generation of change makers, able to critically rethink and transform our future world into one that cares for our planet?

CONCLUSION
In conclusion, I would like to posit four questions for students.

– What new insights have you gained about an environmental issue by examining it through different art and design methods?
– What opportunities are there for the arts to contribute to a social transformation from a cultural one?
– What role did co-creation play in the research? How is it different from researching something alone?
– In what way does ecologically focused art play a role in informing public opinion?

Biography
Úna Henry is the head of the Master Institute of Visual Cultures (MIVC) and Education Manager at St. Joost School of Art & Design, Avans University of Applied Sciences

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Colophon