

PARTICIPATORY SCIENCE COMMUNICATION FOR TRANSFORMATION

#finaltrashtination. An art-based intervention to collaboratively generate conversations about climate change

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Abstract	In this practice insight, an art-based, participatory intervention (#finaltrashtination) is presented as higher education assignment in environmental and climate change communication. The project #finaltrashtination made dominant environmentally destructive ways of wasting visible and stimulated students to take responsibility, advocacy and authorship for transformation. Beyond the one-day eco-culture jam, the project engaged the wider public through conversations about a specific environmental problem. Thus, the project shows how conversational problematization and sensemaking around scientific facts can be initiated by using eco-culture jams promoting very unsettling moments of reflection.
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Introduction & background	At the beginning of the "Roaring 20ies" of our century, communication about scientific facts, about the climate crisis, and about technology to solve our most urgent societal problems (i.e. a global pandemic, natural hazards, CO2 emissions) is equally important as communication <i>for</i> transformation, for cultural change. Next to rather established pragmatic or instrumental approaches to communicate <i>about</i> scientific facts regarding the changing climate or related risks, communication <i>for</i> social change and sustainable development seems to require new, innovative, and rather critical, co-creational ways of communication. Here, recent work from science communication scholarship offers a new understanding of communication as <i>conversations</i> , more precisely: science communication as a

of communication as *conversations*, more precisely: science communication as a social conversation *around* science [Bucchi and Trench, 2021]. Accordingly, new ways to inspire, stimulate, drive and facilitate these conversations are explored and further conceptualized in science communication. Also in practice, storytelling, art-based approaches, digital and design technologies are increasingly used and discussed regarding their potential to engage people not only intellectually, but as

well emotionally [Metcalfe, 2019; Joubert, Davis and Metcalfe, 2019; Lesen, Rogan and Blum, 2016; Nature, 2021]. Alongside, rooted in the growing field of (higher) education for sustainability and transformation [Pedersen, 2017; Sterling and Huckle, 2014], critical pedagogical approaches in science and environmental communication [Weder, Lemke and Tungarat, 2019] have developed using similar conversational approaches. These concepts describe the *conversational role of communication* as carrying potential to crack existing norms, to challenge common sense and common beliefs. Consequently, they include the idea that transformation and cultural change happens in conversations [Weder and Milstein, 2021; Milstein and Pulos, 2015, p. 395; Dery, 2017].

In this situation, Universities as pivotal organizations in modern societies are particularly challenged [Schäfer and Fähnrich, 2020]. There seems to be a lack in engagement and acknowledgement of innovative, conversational approaches [Entradas et al., 2020; VanDyke and Lee, 2020]. Universities are accused to not (always) use their immense transformative potential [Soini et al., 2018; Burns, 2015; Adomßent, 2013; Leal Filho, 2009], except individual teachers who feel responsible for influencing students to take authorship and agency for their future [Henderson and Tilbury, 2004; Lozano et al., 2013; Mezirow, 2000]. Or those who create deeper "transformative learning" processes [Mezirow, 2000; O'Sullivan, Morrell and O'Connor, 2002]. These processes include *problematization* and critique on the one hand, and processes of collective sense-making processes via conversations on the other hand [Weder and Milstein, 2021].

The pedagogical understanding of conversations as negotiations of meaning and sense-making process meets the abovementioned innovative approaches to science communication as social conversations *around* science [Bucchi and Trench, 2021]. Bridging these two backgrounds, the paper at hand offers insights in the project *#finaltrashtination* that engaged scientists, teachers, students, and the audience [Bultitude and Sardo, 2012] by stimulating *conversations about and for the (in)visibility of waste* [Sunassee, Bokhoree and Patrizio, 2021; Weder and Milstein, 2021]. In the following, the genesis of the project and the intervention itself will be described, before the most important learnings in a science and environmental communication context will be discussed and an outlook is given on future perspectives for eco-culture jamming.

The intervention In this section, a science communication project conceptualized as student activism [Halpern and O'Rourke, 2020] will be presented. It started with engagement on an individual level [Pauwels, 2019] and was embedded in a seminar on environmental communication. The intervention had the character of an "eco-culture jam", which provided students ways to generate a situation that helped to bring in emotions [Davies, 2019] and to instigate journeys of conversations and reflection beyond the lecture hall [Milstein and Pulos, 2015]. In the following, the eco-culture jam and the conversations the students stimulated will be described. But before, the idea of an eco-culture jam with *problematization* as core process of the "jamming" will be briefly introduced.

2.1 Eco-culture jamming

As mentioned above, the intervention itself was conceptualized as "eco-culture jam" [Weder and Milstein, 2021]. The concept of an eco-culture jam goes back to performances described as "culture jams" [Lasn, 2000]. As a simple act of creative resistance, the often art-based intervention raises awareness, reframes debates and, most importantly, reclaims and maintains individuals' sovereignty [Milstein and Pulos, 2015]. An *eco*-culture jam in particular describes interventions and simple acts of resistance which "crack" patterns of environmental behavior or a specific representation of our current human-nature relationship, for example the concept of waste.

In a higher education setting, this sort of collaborative nonconformity and students co-expressively working together allows new, alternative ways of communication and learning. With an eco-culture jam, students create a situation where they are forced to question pervasive hegemonies that not only inform the institution of higher education and thus the University itself, but much more their very own everyday experiences like wasting and plastic waste and wider social structures like the lack of information and facts on where the waste goes. The process of questioning is here theoretically captured as problematization through conversations [Weder, 2021a]. Thus, an eco-culture jam is not only about one action or intervention only but also about the stories that are told around it, the conversations that happen alongside the intervention. In these conversations, an environmental problem like wasting or plastic waste are defined as problem by talking about it. Problematization sits at the core of the conversations about and for change, it works as driver and stimulus of conversations about certain facts, for example how much waste we produce, where it goes after we put it in the bin, potential for and techniques of recycling etc.

Problematization also includes the process of creating "cracks in underlying systems of power, and to promote unsettling moments of reflection and debate" [Milstein and Pulos, 2015, p. 397]. It includes the emotions, cognitive dissonances and morality that comes in as soon as people reflect on the sheer amount of waste or the fact that waste does not disappear just because it is put in the bin. Problematization is the process of permanent contestation; thus, in eco-culture jams and related conversations dissent is stimulated and hegemonic arguments are challenged [Weder, 2021a; Roberson and Orthia, 2021]. An eco-culture jam creates confusion over an issue like plastic waste [Weder, Lemke and Tungarat, 2019; Krainer, Lerchster and Goldmann, 2012; Karmasin et al., 2021] and allows new viewpoints and increased awareness, consciousness, and action to emerge from it [Crotty, 1998]. It invites the transformation of a specific situation and increases the level of involvement and action by communication [Crable and Vibbert, 1985]. How this has been put into practice in the eco-culture jam #finaltrahstination will be further described in the next section.

2.2 Developing an intervention

The art-based intervention this paper talks about was part of a university-course specifically focusing on environmental activism, sustainability, and social movements. It started with a design thinking process [Dell'Era et al., 2020] to

identify sustainability and its scope as a normative (westernized) framework [Hahn et al., 2017; Weder, 2021b], that has the potential to be reflected on and "cracked". The design thinking process includes five stages; the first stage is to empathize and research, followed by a definition phase. In the third phase, the creative process starts, called "ideation". A prototype or a specific intervention is then created and operationalized and evaluated, guided by the principle of challenging existing social representations and assumptions, which was described as "cracking" exiting patterns of thinking and behavior above.

For the intervention at hand, several sustainability issues were identified from an individual perspective (stage 1 of the design thinking process), with the most attention on waste and recycling. The students discovered that sustainability is not only divided in a social, environmental, and economic dimension [Pristl, Kilian and Mann, 2020], much more they deconstructed the Sustainable Development Goals [United Nations, 2021] as stimulating not only individuals but mainly organizations and even Universities to "take action" in very different thematic fields.

The second step (stage 2) of the design thinking process were expert interviews and individual research that helped to "empathize", to further understand the problems and challenges around the chosen issue in a non-judgemental way [Buhl et al., 2019]. After identifying waste as one of the core problems and challenges related to the principle of sustainability meaning resource awareness, the students confirmed cultural patterns of waste and wasting, dominant narratives and existing knowledge with narrative interviews on campus. One of the identified waste-narratives was "out of sight, out of mind". The interviews helped the students to not only identify the *culture of wasting* as part of an imbalanced human-nature relationship and example for unsustainable behavior, but as well possible moments of disruption. This part of the research was complemented by workshops with waste-experts and responsible internal staff members to understand the amount and sort of waste at the University of Klagenfurt as well as learn about facts around recycling and further processing of waste in this particular locality.

From there, the students started to share their ideas for an intervention in class, which was above described as *ideating*; this is a core process of design thinking, where the thinking process should diverge and converge as long as needed, before then a few ideas get prioritized. The existing culture of wasting and related patterns of behavior, specifically the concept of "out of sight, out of mind" was the one that got prioritized by the students. This is, what they decided to challenge and "crack", to stimulate conversations around it.

Consequently, the students developed prototypes (stage 3) of wall elements for a *wall of waste*, which was meant to be built and co-created during the day of action: a wall, designed as a visual barrier for people to not "look away", to no longer ignore and to not simply "pass on" the waste they are creating.

For the actual realization of the "wall of waste" (stage 4), the students co-operated with a local startup (pixapo / the thinking) to build the actual elements (1.50 meter \times 2 m each) with wood and plastic wrap, which was chosen on purpose to visualize the waste that you often don't notice, as the "unseen" wrapping (see Figure 1a and 1b).



Figure 1. Building the "wall of waste" elements.

While building the "wall of waste", the students further problematized the concept of waste by not only using the plastic wrap, but even more by producing waste themselves, like the water bottles they used during the process themselves. Here, the students negotiated the responsibility which is given away with each piece of waste that is thrown in the bin, responsibility that is allocated to "whoever is taking care of that" (Interview 6, April 2019). This led to the title of the planned intervention: "*finaltrashtination*", a "wall of waste" which "hinders people to look away" (Student A., May 2019).

2.3 Art-based intervention: the eco-culture jam #finalthrashtination

In the early morning of June 5th, 2019, the students transported the transparent elements of the wall of waste and built it up in the entrance hall of the University (Alpen-Adria University of Klagenfurt, Austria; see Figure 2).

After this, they collected the University's 2-week-plastic waste which was held back for this period of time for us and unfurled it in front of the University's main entrance (see Figure 3a and 3b).

The difference between an eco-culture jam and an art piece is, that the jam itself, the process of creation is the intervention itself, rather than a pre-build or pre-created art piece which then acts as trigger for reflection or conversations [Lesen, Rogan and Blum, 2016; Davies et al., 2019]. An eco-culture jam is the "doing", the ongoing problematization, by creating interrelatedness, connectedness, and involvement. Therefore, the students invited everyone who wanted to enter the University via the main entrance, to pick one piece of waste, enter the main entrance hall and throw the waste in one of the transparent parts of the wall, which were open on the top.

Thus, in a participatory process during the whole day, the transparent wall elements in the front hall of the University of Klagenfurt filled up with waste, piece by piece (see Figure 4).



Figure 2. Wall elements, filled over the day.



Figure 3. Plastic waste (collected over two weeks) spread out in front of the University of Klagenfurt, Austria.



Figure 4. Final "wall of waste", #finaltrashtination.

As mentioned above, during the day of action and due to the fact that the intervention took place at the most crowded spot of the University (entrance hall), conversations and live storytelling were stimulated, again, with problematization happening automatically triggered by the *action* of throwing a piece of plastic waste in the "bin" again, rather than the art piece as a whole. Thus, in the following summary of the learnings of the project, these problematizing conversations and the potential of this concept for science communication in the future will be highlighted.

Discussion

Related to Bucchi and Trench's [2021] work on social conversations around science, eco-culture jams are a participatory form of conversation, informal and open [Bucchi and Trench, 2021, p. 8] As described above, while stacking and building the "wall of waste", the students not only invited people passing by to join in (direct communication), additionally, they stimulated a discourse via social media during the jam (indirect communication). This is what we defined as conversations *about* certain waste related facts (about the amount, quality, problems and challenges with recycling, comparisons with other contexts etc.), see Figure 5, first phase.

But furthermore, there was a second phase of problematization and resonance, a public discourse that was stimulated by the news coverage and the shared youtube-video of the intervention via individual social media and local newspaper's websites. This discourse represents what we define as communication *for* change, for transformation, because the jam itself was discussed and problematized as sustainability related action in the media beyond the day of action. Thus, the art-based intervention *#finaltrashtination* left an impressive footprint in the local, regional and definitely the wider social media environment.

Finally, the intervention was discussed in the classroom (stage 5); this feedback and "back-coupling" of the jam itself closes the loop, is what we conceptualized as education for transformation and educating to take responsibility and authorship



Figure 5. From conversations about waste to conversations for sustainability.

in the first section of the paper. Eco-culture jams are participatory, they engage not only every day and individual ways of communicating and constructing culture, here: a culture of wasting. Beyond this, a culture jam engages institutional ways of communicating. Science and environmental educators can use this participatory communication strategy to bring the act of jamming back into the realm of questioning, of creatively engage with the locality (here: University) and shifting or even repositioning culture.

Overall, the art-based intervention *#finaltrashtination* is not only an example of innovative pathways in learning and teaching science and environmental communication in a university setting. It also shows the potential of re-thinking science communication as social conversations *around* science and of bringing in new principles like sustainability into existing environmental discourses.

Outlook

The project #finaltrashtination was conceptualized as ecoculture jam and therefore as pedagogical tool which is particularly relevant for science, sustainability and environmental communication scholars, pedagogues, and practitioners, most of whom adhere to an "ethical duty" [Cox, 2018] that drives their work, and who are interested in transformative communication and ways and tactics to engage consciousness, reflexivity, and critical awareness [Darts and Tavin, 2010]. In introducing this specific ecoculture jam as valid mode of learning in on and off-campus teaching spaces, this insights paper shows how science and environmental communication students can be supported and motivated to take action, mobilize, and actively engage with scientific facts, technological solutions and concepts like sustainability by creating moments of disequilibration where real change can happen.

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