

Spaceships and Poetry: Enlivening the Lab as a Site of Feminist Critical Pedagogy

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Abstract

Whilst STS has long studied lab work, the past few years have also seen the introduction of labs as social formations for doing STS enquiry. But what kind of contributions to pedagogy, particularly in technical universities, can STS inspired university labs make? We respond to the need to more deeply understand how teaching may be practiced as a site of STS experimentation by describing the work of the ETHOS Lab, our critical feminist lab at the IT University of Copenhagen, as ‘enlivening’. Using three events from 2017–2020 as case studies, we identify both the use of space and shaping of time as integral to how we have sought to trouble knowledge production in our own environment, particularly by creating sites and situations where teaching and research cannot be separated. By showing how our Lab activities intervene in ways of knowing and doing within university hierarchies and cultures, we aim to contribute an analysis of the critical potential of STS lab work in technical environments, and recommendations from our situated evolving space of feminist praxis within an interdisciplinary IT University.

Keywords

computer science; lab; feminist pedagogy; placemaking; timework

Introduction

On the third floor of a large, glass building beside a canal in southern Copenhagen, Denmark, a former printer room has been given over to an experimental laboratory. At night, the fairy lights hanging from the

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metal ceiling glow long after the office workers have gone home, reflected in the windows and visible from the apartments across the water. Here, in the ETHOS Lab at the IT University of Copenhagen, which stands for 'Experimental Techno-Humanities and Organizational Services' lab, we have since 2015 been a growing interdisciplinary methods community, an exploration of feminist praxis in STS. Emerging within a well-established institutional lab culture, where university lab space is given over to disciplines like interaction design, robotics, affective architecture and pervasive technologies, ETHOS Lab constitutes an ongoing pedagogical experiment, stabilizing as a site of critical engagement and community around IT. Through our focus on methods as a meeting place between and across disciplines, our shared objective is to make visible and intervene on the politics of knowledge making in software engineering, information systems management and the broader technical fields of computer science.

In this article, we are interested in the kind of work our lab has had to do to make that objective realizable. While the pedagogical focus of the lab is methods as a site through which we can introduce critical questions about technology, knowledge production, and hierarchy, in this article, we follow the argument articulated by Melissa Stone, Nupoor Ranade and Missy F. Hannah, building on Michelle Kempson's work (2015) that 'DIY feminist placemaking is vital to a full understanding of feminist pedagogical practice' (Stone, Ranade, and Hannah 2020). In short, good STS question-asking that critically engages with method does not happen in isolation, nor can it happen without preparation. Placemaking – which we figure here both as preparatory groundwork, and as the enlivening of a broader community of knowledge – is work we have come to see as necessary, in our IT focused context, to make such a pedagogical intervention possible. We contend that this groundwork too, is work of feminist pedagogy. In this article, we foreground it as a necessary precursor and accompaniment to concrete questions of how the 'poetics' of lab as infrastructure can be used deliberately (Larkin 2013), as we work within our institution to prize open spaces for STS questions to come alive. Thus, we share practices that constitute our answer to what the editors call 'collaborative formation at the intersection of pedagogy, engagement, and research' (York and Okune 2024, 94; York and Conley 2019). It is the practices emerging from this collaborative formation, in response to its institutional environment, that we argue constitute the work necessary for feminist STS pedagogies in and through our lab.

We begin by describing the everyday interactions between the physical, student facing space of the lab, and its organizational forms. Our activities continuously challenge divisions between research, teaching and communication – producing bureaucratic accounting complexity along the way. In the ensuing sections, we describe how and why the lab intervenes into ways of knowing within the epistemic hierarchies and cultures of our technology oriented university through three events that draw in techniques of convening, humanities and social science sensibilities. The first event took place in 2017, was called *Requiem for a Spacecraft* and told the story of the Saturn mission Cassini through connecting existing lab research to the live stream of the destruction of the probe from California based Mission Control. The second was a year later, when General Data Protection Regulation (GDPR), came into force in the European Union in 2018 after a two-year preparatory period. Using erasure poetry – a form of protest poetry – we made the entire legal text available for poetic erasure, producing a chapbook (a small collection of poems) from the resulting poems. Finally, the PhD course, 'Research, Interrupted', ran through the lab entirely online in the summer of 2020. Here we show the lab as an infrastructure through which to lift pedagogical principles of conversation and inclusion, showing students affected by the Covid-19 pandemic around the world that they

were part of an international cohort of support and peers. Making the case for ‘enlivening’ as an ongoing process of meeting points, each example illustrates possibilities for re-shaping the engagement between students and faculty, and the ways that STS informs pedagogical design within our institutional setting.

Institutionalizing STS in a Laboratory

To write a history of the ETHOS lab is to write an institutional history. The IT University of Copenhagen (ITU) is Denmark’s youngest university, founded in 1999 and accredited in 2003, and has since its inception, been growing, taking on additional students and staff. Echoing a ‘start up’ narrative, the university’s 20th anniversary materials describe how the newly appointed Managing Director ‘showed up on his first day of work on April 1, 1999 with a monumental task ahead of him: to prepare the university to receive the first 150 students at the end of August’ (ITU 2019). In his own words, ‘it was like building a rocket that had already been launched’ (ibid.). The Director of the Ministry of Education handed the new Director his business card, ‘call if there are any problems’ (ibid.).

Within the Danish Higher Education landscape, where universities are nationally funded and public, seven universities cater to the national population of students who receive State Education Support (SU) grants to study.¹ As a result of university reforms in the early 2000s, there is an active field of critical university studies within the country, and as Wright has observed, the reforms ‘required universities to respond to the demands of ‘surrounding society’ and gave universities the status of legal persons, so they could organize their relations with stakeholders (industry, consultancies and the state) through contracts’ (Wright 2017, 19; see also Wright and Ørberg 2015; Wright 2021). Becoming a service provider to the state, not just of education but also scientific knowledge, the IT University where ETHOS lab is based takes on a specific kind of societal role, educating IT professionals for the current and future digital society. Denmark, claiming its place as one of Europe’s most digitalized nations, is consistently and consciously working to maintain that position, spurring much social and political research within the country (Maguire and Winthereik 2019; Schou and Hjelholt 2017; Schou and Pors 2019). As such, the degree programs that researchers involved in ETHOS lab teach on, such as Digital Innovation and Management and Global Business Informatics, combine the teaching of technical ‘skills’ with critical perspectives on IT and digital technology.

The faculty teaching on these interdisciplinary programs arrive with their different backgrounds and trainings, with both students and faculty working to find narrative and cohesion between the different elements of scholarship taught. It was within this organizational context, we began building infrastructures

¹ Changes to the funding of degree support for international students from the EU/EEA mean that fewer now participate at the undergraduate level. The Danish Ministry of Higher Education and Science announced limits on EU students (Uddannelses of Forskningsministeriet (UFM) 2021), against a backdrop of changes to higher education within Denmark. To understand the status and role of universities in the setting from which we write, readers outside of Europe will gain from reviewing literature produced in the Centre for Higher Education Futures (Wright and Ørberg 2011, 2015, and 2017) and critical university studies more broadly (Wright and Shore 2017).

of collaboration that would allow critical questions to emerge outside, between and alongside these already interdisciplinary university courses.

For some faculty, such a space constituted a 'normal' part of undergraduate and graduate training, a lab was an intellectual and social feature of the university landscape. Marisa Cohn, one of the lab's co-founders, arrived in Denmark from the informatics program at UC Irvine in 2013 used to a culture of interdisciplinary labs built up at that institution, which hosts labs on connected learning, creativity, health and information, ubiquitous computing and interaction, software design and collaboration, personal informatics and transformative play, amongst others ([University of California Irvine 2021](#)). During her studies, it had also hosted the Arts Computation Engineering (ACE) program that combined feminist and critical cultural approaches to science and technology in its pedagogy ([Born and Barry 2013](#)). Contending that computer science, 'as a single discipline, can no longer speak to the broad relevance of digital technologies in society', scholars at UC Irvine describe the informatics department as the 'institutional home for research on relationships between technological, organizational and social aspects of information technology' ([Dourish et al. 2008, 3651](#)). Working alongside STS scholar Brit Ross Winthereik, then head of the 'Technologies in Practice' research group at the IT University in Denmark, Cohn noted the absence of such a laboratory space for STS and anthropological questions in her new Danish University's existing lab landscape. This absence matters particularly in a university dedicated to computer science, for all the ways that the politics of IT are neutralized, whether through data infrastructures and softwares re-enacting colonial patterns ([Lehuedé 2022](#); [Jutel 2021](#)), binaries and classifications written into software ([Bowker and Star 1999](#)), IT's environmental devastation ([Dalsgaard 2022](#)), the commonplace nature of racialised and gendered techno-heroics, ([Benjamin 2019](#); [López 2022](#); [Pink 2022](#)), the turning of ethics into a corporate logic ([Metcalf et al. 2019](#); [Fritsch 2021](#)) and the way data are presumed to 'speak for themselves' ([D'Ignazio and Klein 2020](#); [Poggiali 2016](#)). Simultaneously, concurrent work in the media studies subfield of digital methods ([Rogers 2013](#)) was becoming influential within STS ([Venturini and Latour 2010](#); [Venturini 2010](#)) through work on studying social media and other internet phenomena. Students who were introduced to basic digital methods techniques through our feminist STS-informed course *Navigating Complexity* lacked a place/space to develop their skills further, and a lab appeared as a potential solution to both support students and explore digital methods further. So, with Michael Hockenfull, a teacher on the Digital Innovation and Management MSc programme, they set about working with colleagues to make an infrastructure that would experiment, explicitly, with the knowledge economy of a technical university. Initially supported by hours from teaching assistants from *Navigating Complexity*, the ETHOS lab was granted a physical space along one of the university's long corridors, and as a community of students and staff experimenting with data-sprints ([Laursen 2017](#)) and questions of the relationship between teaching, consultancy and pedagogy. Inside the lab, teaching assistants ran open hours, supporting learners of data visualization tools and methods for exploring contemporary 'data landscapes'.

How a 'lab' operates as an imaginary warrants description of its own. In *The Lab Book*, which primarily addresses labs in media studies, media scholars Darren Wershler, Lori Emerson, and Jussi Parikka draw out 'space, apparatus, infrastructure and policy, the imaginary, and technique' ([2022, 3](#)) key elements that we recognize as foundational to how the ETHOS lab has come to endure as a space for critical enquiry. Of particular significance to us is *space* and its contestation. Our well decorated former printer room is a political achievement: accessible and inviting to students, with large glass windows through which we can

display objects (3D printed data visualizations) books (a lab member-selected book of the month!), posters (Python study group, an advertisement to become a junior researcher, guest lectures) and publications (articles and booklets we've made). It is a *shared* space, made alive through faculty and student inhabitation – opening hours, a sofa, a snack corner and tea table, hot-desks, plants, polaroids of former members, posters of events past, faded Post-it notes, doodles on the whiteboard. While our university has a very open atrium and workspaces on balconies, besides the canteen and café, few spaces at our university are deliberately set up for faculty and students to encounter each other in a more than passing way. There is no library. This makes the student-facing work of the lab especially critical for those of us with ambitions of—

... open[ing] up spaces in which scientists, engineers, humanists, social scientists and artists may work together to create knowledge that is responsive to a broader range of societal concerns and needs (Reardon et al. 2015, 4).

It also responds to the critical question of feminist pedagogies, namely 'How can the *environment* of education help challenge oppressive political structures and cultural norms rather than conform to them?' ([hooks 1994, 2010](#)), a question we take as foundational to our groundwork of enlivening.

No two labs are alike, and the turn towards the establishment of labs in the humanities and social sciences is in the process of being narrated ([Pawlicka-Deger 2020; Parikka 2016](#)). As an STS lab, we began in the knowledge that experimentalism is not neutral. In its foundational documents, ETHOS lab described the work of making the lab 'not only an object of study but do so through creating a lab which studies itself' ([Cohn and Winthereik 2015](#); see also [Douglas-Jones 2016](#)). Curiosity about how laboratories perform and validate knowledge, through their physical and social formations, echoes what Wershler, Emerson, and Parikka call 'the value of scientification', a longstanding modernist idea tied with the aesthetics of technical modernity ([2022](#)). It is also in evidence across research projects that seek to reformulate the social through 'laboratizing' it and 'calculating' it ([Madsen et al. 2018](#)). Our intervention however was different: through attunement to the power relations within knowledge construction ([Crawley, Lewis, and Mayberry 2008](#)), we sought to intervene in an institutional epistemic hierarchy that places some forms of knowledge about computing (programming) above others (design, maintenance and repair, use, politics and societal implications). In our setting, creating a lab that was acutely aware of the knowledge politics involved in expanding with STS the kinds of questions it is possible to ask in an IT focused university is an epistemological project ([Vora et al. 2022, 6](#)). It is also one made possible through claiming physical space, everyday acts of community building, and reflexively forging 'new relations' shaped to and by students, who – through engagement with faculty and each other in ETHOS – are continuously learning to ask better questions. This is, after both Haraway ([2010, 2016](#)) and Butler ([\[1990\] 1999](#)), the kind of 'trouble' we cause.

During the lab's operation, for example, we have had to argue for the kind of things lab budgets could be spent on – note Wershler et al.'s questions of policy and infrastructure. If a lab is conceived primarily by an institution as a site of material experimentation, then machines, maintenance and supplies are all given resources. An early roster of accepted expenses listed machines and devices, software and hardware, but included no people, labor, visits, or costs associated with hosting guests. Building social infrastructure was not classified as 'lab work'. Over time, diplomatic work from lab managers changed this policy, foregrounding people, ideas, discussion and community as core elements of lab work, requiring their own, dedicated budgets. At the same time, we have made ourselves recognizable through engaging what a

lab is 'expected' to look like in our setting: we host subscriptions to software tools for sociological analysis, have taken (critical) responsibility for seeking out, organizing and managing datasets for ongoing research ([Ojala, Ferreira, and Gjørding 2022](#)), and experiment with the hardware and software of our own website ([Landa 2022](#)). We draw from interviews with colleagues to whom we provided data, focusing on the lives of these data post-handout, seeking accountable practices, guidelines and conversations between ourselves, our students, our colleagues and users of social media. This doing of legibility aslant allows us to reconcile the lab's commitment to feminist values with production imperative and materialities of potentially creepy data ([Shklovski et al. 2014](#); [Seberger et al. 2022](#)).

In sum, we do not just make trouble in budget categories, or in the boundaries between teaching and research. We trouble ways of doing within the disciplines that make up IT, making visible the role of the person within the research. Demonstrating how we cultivate a space where these other, different questions come to be asked, we now describe how the lab as a collaborative formation more concretely 'enact[s] and reflect[s] the relationships between pedagogy, engagement, and research' ([York and Okune 2024, 94](#)). We take you first to an early event, in 2017, which brought data into new focus for students.

Meeting the University: Requiem for a Spacecraft

Friday the 15th of September 2017 at 13:00 hours, lunch time in Denmark. In California, 05:00. 'Join us', we wrote exuberantly on our posters, 'to celebrate the final hours of the NASA spacecraft Cassini, as it crashes into Saturn!' This was the date and time that the Cassini mission, which began in 1994, would come to an end. The crashing was not literal, as Saturn is a gas giant, and the official term was 'controlled descent' – but on this Friday lunchtime, lab members and guests gathered in the lab. The space was set up to mirror the mission control room at NASA, with screens and monitors covering the walls, showing both the official live stream NASA's and images of Cassini's trajectory. Like those gathered in the control room, we filled the room to sit together and watch the last data emanating from the Cassini spacecraft, as it was flown into the atmosphere of Saturn to 'die'. Designed as a PublicETHOS event – a format created to open lab events beyond the existing students and staff – our format was this: a couple of research presentations would set the scene, before we collectively viewed the live stream in the last moments of the spacecraft's life. A glass of sparkling elderflower cordial would toast the life of the mission and wrap up the hour-long event.

We called the event 'Requiem for a Spacecraft'. While the term 'Requiem' is most known in its musical and religious form – a mass – it is also defined as an 'act or token of remembrance', and it was in this second meaning that we meant our gathering.² By the time Cassini burned up in Saturn's atmosphere, it had spent thirteen years in orbit around the planet, following a seven-year journey from Earth. The event we hosted made space for the biographical within a research environment, since it was not targeted at course outcomes or exam formats. Instead, our own lives, and our research biographies, became available as part

²This dimension of memorialisation, is described elsewhere in STS literature for robots and devices other than space going rovers. Robot funerals for Japanese companion dogs are described by Hannah Gould et al., ([2021](#)) and Janet Vertesi has written about the social bonds that developed between mission staff and the Mars Rover ([Vertesi 2015](#)).

of the narrative. Cohn observed that the event in Copenhagen made for a more powerful experience than if she had attended the live stream alone, and it allowed her to stitch together her life afar from the object and her field-site by ‘being with’ the field for this final event in the life of the object. Douglas-Jones told the story of the Huygens poster she had taken home from school in the mid-’90s, provided by the European Space Agency who had hitched a ride for their probe, Huygens, on the larger Cassini NASA mission,³ tying together the biographical past with the affective present.

The time arrived. Streaming from YouTube, we listened to the voices of mission control, quietly observing their formal mission language and marveling at the hush mirrored between our room and the Jet Propulsion lab’s Mission Control. The live stream moved between shots of the rows of uniformed NASA employees in their blue polo shirts, headsets at the ready, and a black screen with a green spike, indicating the ‘X’ band and ‘S’ band, two different radio bands used by Cassini to transmit.

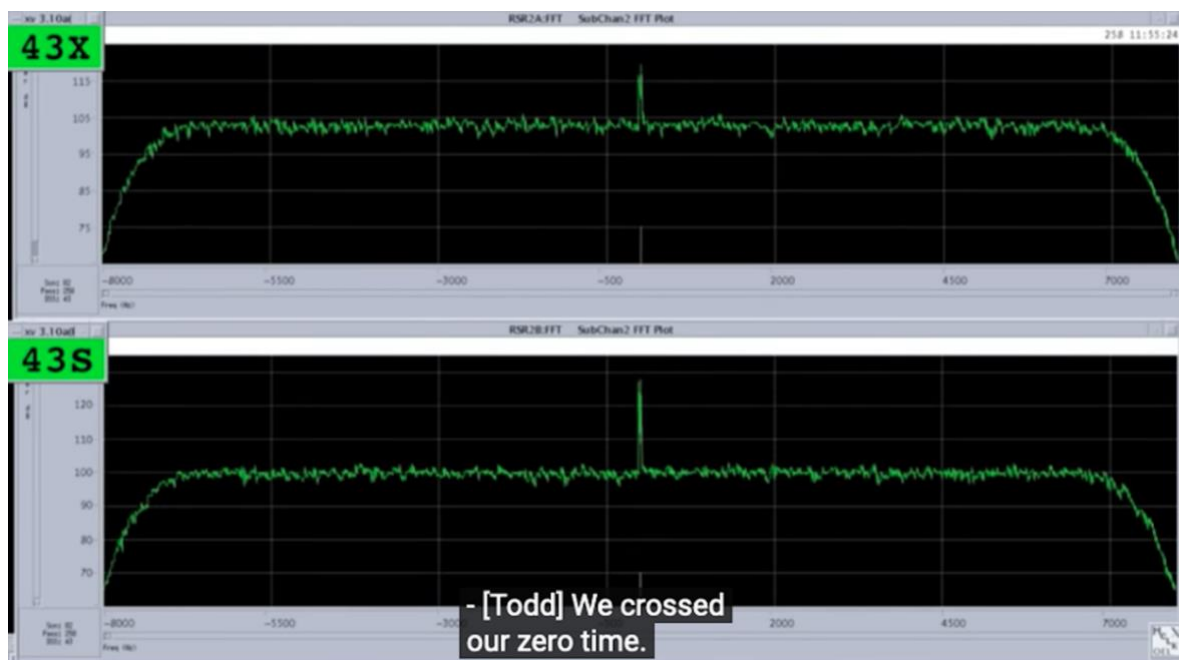


Figure 1. Screenshots from NASA Mission Control Live: Cassini’s Finale at Saturn, timestamps 55’:30” (showing signal on both X and S band) and 55’:52” (showing signal lost) ([Nasa 2017](#)).

‘We crossed our zero time’, the commentators said (see [figure 1](#)), noting that the signal was still present even after the point where no more transmission was expected. As the spike shrank and disappeared, leaving just a flat line, we watched in silence.

Flight director, radio science. . . We have loss of signal

³ The Huygens probe made it to Titan in 2005 after nine years in flight, and lasted four hours ([ESA 2019](#)).

On our screen, people in Mission Control began sitting back from their screens. A few held their hands over their mouths, waiting.

OK we call loss of signal, loss of X band, at . . . we call loss of signal at 115546 for the S band, that would be the end of the spacecraft . . .

Maybe a trickle of telemetry left, but just heard the signal from the spacecraft (NASA 2017).

At the speed of light, radio transmission takes approximately one and a half hours from Saturn to Earth. The room ‘called loss of signal’ in a way reminiscent of calling ‘time of death’ in hospitals, and after a brief speech of thanks and pride from the director, NASA staff began hugging, shaking hands, and crying.

To the celebrations of those in the mission room thousands of miles away in California, we added our own. Champagne flutes were filled with fizzy elderflower, people said a few words, some wiping tears. In this shared experience, the lab convened a moment of *witnessing with*. Participants were made part of the Cassini narrative through their witnessing, watching the green spike fade. It was an affectively charged situation, the first of many we went on to create through lab events over the following years, for how it created an environment for collective participation and curiosity.

To follow the event with an ethnographer engaged in an ongoing study of the Cassini mission who could share imagery from earlier fieldwork (Cohn 2013), we were able to connect the mythos of NASA and histories of space exploration with a small room in Copenhagen. This offered students and participants an understanding of ‘long lived systems’,⁴ the importance of well-served, old code and introduced them to ideas of obsolescence in software (Cohn 2019). While our event foregrounding the arrival of unique data collected by Cassini as it burned up in Saturn’s atmosphere, and the softwares that had allowed for its continued operation so far from Earth, the questions raised by its destruction were also ethical, and foundational STS questions. The moment clearly resonated with one of the lab’s early research themes, *Temporalities of Data*.

NASA had announced Cassini’s timed demise partly because of concerns over an uncontrolled death, risking the ‘prebiotic’ moons, Enceladus and Titan orbiting Saturn:

In order to avoid the unlikely possibility of Cassini someday colliding with one of these moons, NASA chose to safely dispose of the spacecraft in the atmosphere of Saturn. This ensured that Cassini could not contaminate any future studies of habitability and potential life on those moons (NASA 2019).

In our presentations prior to the final moments, we presented this reasoning behind the destruction in order to ask the gathered room to reflect on all that had gone into this decision: the institutional responsibilities, speculations on inter-planetary futures, respect for natural (research) sites, the funds for future space exploration, and the kinds of long-term thinking it made visible.

⁴ As well as long lived research.

As a feminist intervention into the space of the university, the *requiem* invited collective, subjective and emotional response, refusing an epistemic hierarchy that would value the scientific data coming from the last moments of the probe, over the clear outpouring of appreciation for Cassini's 'life'. A 'one off' event, it tuned in to a specific moment in the life of a NASA mission.⁵ Cohn's research ties with the Cassini mission made the virtual field trip to Mission Control, the momentary intimacies with the green spike and those whose careers had been spent running a spaceship far from Earth, tangible. Regarded retrospectively, its efficacy as a form of STS pedagogy came from the openness of the affective and affecting space: a convening that allowed for speculative, curious, caring questions to be asked. To other collectives considering building feminist lab spaces, we would ask what events could convene your community around a common temporal moment? What might resonate with your local community? Which dominant viewpoints could be affectively shifted? For us, the requiem marked the beginning of a pedagogy of the event, as we learned how to the following year again invited broader publics into the lab space for a time-specific, date-marking event.

Meeting Publics: The Great Deletion Poetry Rave for GDPR

Building on our pedagogy of the event, the following year we ventured into an enlivening which had a greater, unanticipated, public afterlife. In 2018, on the 24th of May, the eve of the General Data Protection Regulation coming into force, ETHOS lab hosted two *Great Deletion Poetry Raves*, so named to play off the acronym by which the new data protection regulation was known: GDPR. The GDPR, according to legal scholars, marks in part continuity and in part break from prior fragmented data protection laws ([Albrecht 2016](#); [Goddard 2017](#)), attempt by decision-makers to harmonize and consolidate the outdated European data protection laws, amid the increased datafication of everyday life ([Dourish and Cruz 2018](#)). Change was in the air, but its meaning was opaque. The GDPR was proclaimed as a 'new global digital gold standard' ([Buttarelli 2016, 77](#)). Data protection ceased to be an 'optional extra', instead, incorporating the data protection rights as fundamental, and 'favouring the rights and interests of the individual above corporate or business aims, however reasonable and legitimate' ([ibid.](#)). For months prior to May 2018, the greatest sign that GDPR was on the way was emails, which had made their way into most peoples' inboxes from companies who held your data – usually your email address. They were now required to secure explicit consent. It simmered in the university's awareness, and as such, became something to convene around. This time, our poster read:

As researchers in the ETHOS Lab, we are interested in data in all its forms, but especially in the technologies through which people relate to it. We will black out our windows, play data soundscapes, hang GDPR wallpaper, drink beer and make deletion poetry! This will be an evening of arts engagement and techno-humanities experimentation as a key moment in regulation transformation!

⁵ It lived on through its hashtags #grandfinale and #goodbyecassini, which, harvested through ETHOS lab's [Twitter Capture and Analysis Toolset](#) (TCAT) – a tool to capture and analyze Twitter® tweets developed by Eric Borra and Bernhard Rieder ([2014](#)) at the [Digital Methods Initiative](#) (DMI ([2014](#))) at University of Amsterdam and co-maintained by open source contributors, creating further digital resources to narrate the event at future public facing activities.

As their entry ticket to the party participants were invited to bring something to delete (or proof that they already had, see [Gahoonia et al. 2020](#)⁶). We hosted two poetry raves, one in the lab itself during the 2018 Danish STS conference, the other in the atrium of the Big Data Institute in Oxford, where one of our lab members was visiting at the time.⁷ In both cases, the principle was the same: The General Data Protection Regulation was coming into force but very few knew what ‘the GDPR’ actually meant. Fewer still would sit down and read the long legal document, comprising both the regulation and articles. Enter erasure poetry – a form of protest poetry – which allows for close reading and creative responses to formal (often legal) documents. It has long been used as a form of protest, particularly in the work of poets like Niina Pollari ([2017](#)) and Alison Thumel ([2017](#)), who took their poetic eye to immigration forms and Breitbart articles following the inauguration of Donald Trump as president of the United States. As a commentary on the legalese and sheer inaccessibility of the GDPR, we made the entire legal text available for poetic erasure. At 264 pages, it covered an entire wall of the lab in Copenhagen, and many pinboards in Oxford.

⁶ At the Copenhagen event, a paired installation created by lab members Baki Cakici, Pedro Ferreira, Simy Kaur Gahoonia and Cæcilie Sloth Laursen accompanied the deletion poetry rave by creating an immersive experience called ‘Compliance’. Participants were invited to ‘enter into compliance’ by deleting a file and dropping a note of what was deleted into a receptacle. This gave them access to a transparent ‘bubble’ installation, inside which we placed a sofa and a wireless speaker, reciting the words of the GDPR. As the words of the regulation washed over the participant, they were prompted to reflect on their bodily relations to data, the ways they are (and are not) the data collected about them.

⁷ Following the eventual success of this format, we also took the erasure poetry workshop to a local festival, called ‘TechFest’, which took the tagline ‘where humans and technology meet’. Sponsored by industry and government, it aimed to provide a space where ‘entrepreneurs, scholars, grassroots organizers, designers, programmers and other curious minds’ ([Techfestival 2020](#)) could meet. Hosted in the former meatpacking district, the event drew a much broader audience to the erasure poetry event, and offers another pedagogical model of engagement, in which the lab had a facilitation role, hosting its own hands on workshop, where participants could create erasure poems to take home in a range of languages.



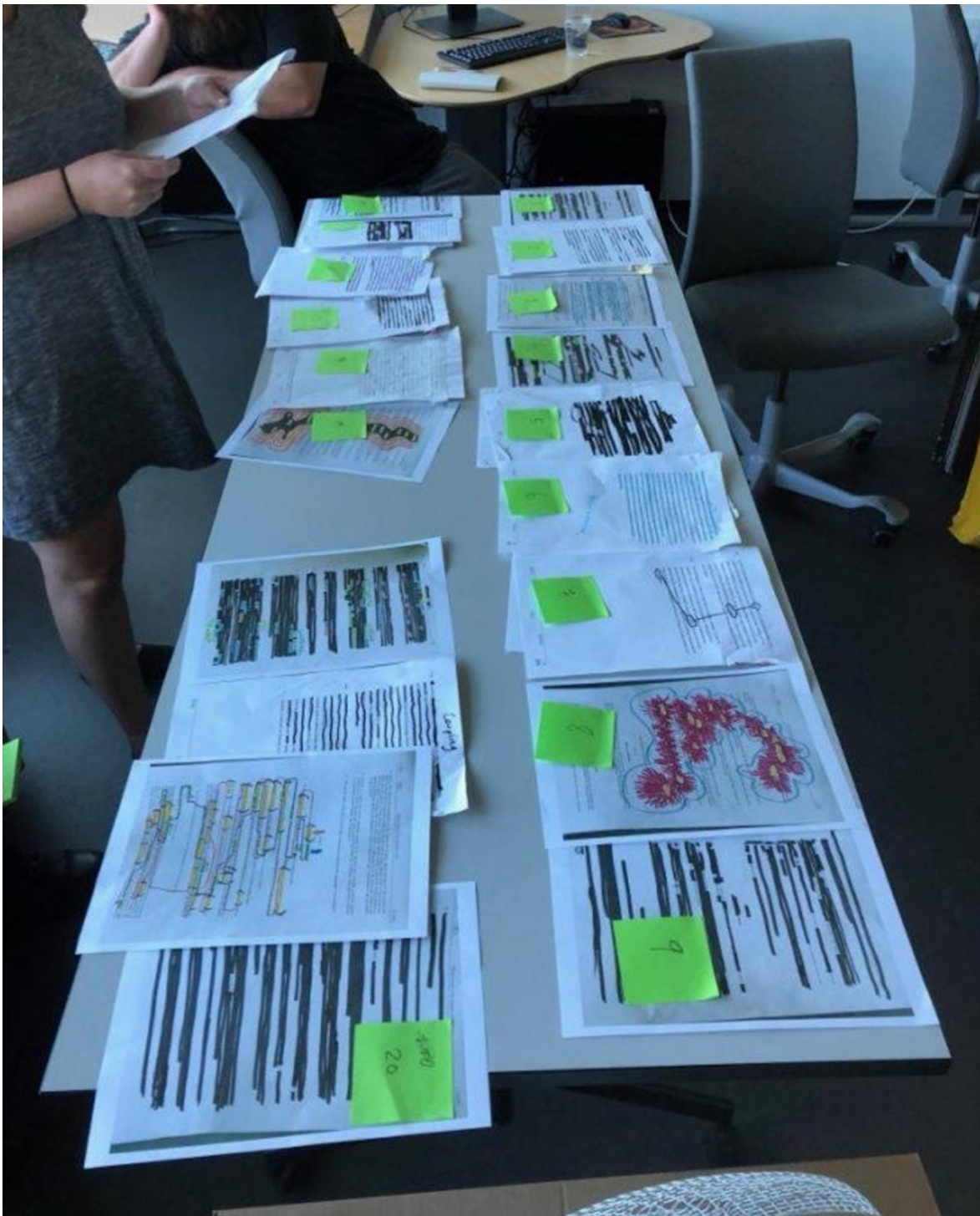
[Figure 2](#). In 2018, the lab Manager Simy Kaur Gahoonia climbs a ladder to ensure that the pages of the GDPR are stuck to the lab wall. Source: Cæcilie Sloth Laursen.

York, Conley and Kodua within the STS Futures lab describe the need for —

capacities for responding to and reasoning about the fast-paced and impactful changes that confront society through science and technology, we believe that we urgently need more robust methods for the democratic governance of emerging technologies ([York, Conley, and Kodua 2019, 82](#)).

Erasure poetry, we reasoned, was a relatively democratizing form of engagement with regulation. It was not about legal argumentation, nor was it a primer on rights. It was not about literary poetry either. It was another way in, a means of starting a conversation about data protection. The project was prompted by poet Sarah Howe's 2014 article in which she describes a poem she is working on, 'Two Systems'. Part of the 'one country, two systems' principle that applied to Hong Kong through the adoption of the Basic Law of Hong Kong following the 1997 handover of power, Howe thought of the fifty-year period during which 'one country, two systems' Basic Law would endure, as a 'self-destructing text' ([Howe 2014, 249](#)). She describes an imaginary project in which she was 'releasing their anarchic, subversive, gloriously vulgar undersongs' through erasure, finding 'touches of sense emerging'. At our events, we handed people a marker, a beverage, and they found a part of the text to engage. Providing participants with a black marker, we invited them to turn to the wall of [legal] text (see [figure 2](#)) into new texts which we hoped would work for us as a speculative instrument. We commissioned David Cohn, a visual artist, to create two collaged animations with synchronized audio for the GDPR event, which he titled *digital territory* and *zero memory*, and ran on a two-screen loop during the Copenhagen event⁸ creating an 'ambivalent ambience' ([Cohn 2018a](#)). It would, through the challenge of creativity, open questions about party goers' ignorance of GDPR, as much as it would allow them to engage in the deletion to which they were now legally entitled ([Douglas-Jones 2018a, 10](#)). The life of the poetry project as a pedagogical tool beyond the moment of the 'poetry raves' was not planned. However, responding to the creative engagement participants brought to the two events, we collected up the poems and began to make plans for a chapbook. In editorial meetings, we selected poems based on their message, aesthetics, or poetic rhythm. Poems by faculty staff, our students and guests were all included ([Douglas-Jones and Cohn 2018b](#)).

⁸ More of David Cohn's work can be found here: <https://davidhcohn.com/> as well as the videos created for the event itself are available here ([2018b](#)).



[Figure 3](#): Organizing and ordering copies of erasure poems combined from the events in Copenhagen and Oxford for the 2018 chapbook. Source: Author's own.

As [figure 3](#) shows, we ordered them, and gave them titles – something most lacked as they had been created on a single printed sheet of the regulation. Once collated, the resulting chapbook took on a life of its own,

with its first print run of 200. We held a launch event in Copenhagen where students, staff and wider publics were invited into the university space to hear poems read aloud, receive a flyer based on the new rights the GDPR conferred and share cake printed with Recital 4⁹ from the GDPR. We held a launch event in Oxford, using the opportunity to interview a data protection lawyer who had worked with GDPR for several years, and who composed Petrarchan rhyming sonnets for the foreword of the collection ([Docherty 2018](#)). For our own university students, who often visit high schools, the chapbook became a means of introducing key data protection concepts to teenagers. While data protection might not be the most enticing subject on its own, the chapbook proved to be a resource for teachers: we had added a page at the back of the collection for readers to ‘make your own erasure poem’, giving local students an entirely different way to approach the GDPR. The same was true for newly appointed data controllers, who, tasked with running in-house training towards ‘GDPR compliance’, were faced with rows of bored colleagues. We were contacted by many large Danish companies, one even requesting a copy as a retirement gift for a chief data protection officer. By singling out specific key concepts in the regulation – processing, the data subjects, consent, lawfulness processing – the poems thus served as entry points to the text, and the issue of supra-nationally regulated data protection, as a whole.

In what way does this enact an open, feminist pedagogy? What groundwork does it do? As a co-exploration, erasure poetry made inscrutable regulation immediate. As an intervention into public relationships to legal jargon and bureaucratic policy language, it introduced humour, and a collective formation around an unexpected object. Kat Jungnickel observes that this ‘kind of practice sparks the imagination. It can generate new spaces to think, explore and experiment, giving rise to unexpected connections and ideas, as well as engagement with different publics’ ([Jungnickel 2020, xi](#)). We could describe such unexpected connections in Ortmann’s terms as a version of ‘collaborative knowledge construction’ ([2022, 13](#)), a site of shared interpretive work, where the resulting poems afforded personal and affective relations to the regulation and created a loose community of participation, conversation and publication.

The chapbook was an informal product with little value within formal academic systems of assessment to which Danish academics are subject ([Rowlands and Wright 2019](#)). However, as an intervention into our own environment, it privileged an approach ordinarily outside of both methodological and scholarly priority within our IT world, poetry. It put into practice the asking of different questions of authoritative texts, inviting epistemological diversity within formalistic worlds (see [Vora, McCullough, and Giordano 2022](#)). Taking seriously basic insights from STS canon about what publication formats have ([Latour 1987](#)) or could do ([Haraway 2016](#)) to research, charismatic formats change both what research can be, at the same

⁹ Recital 4 of the General Data Protection Regulation reads “The processing of personal data should be designed to serve mankind. The right to the protection of personal data is not an absolute right; it must be considered in relation to its function in society and be balanced against other fundamental rights, in accordance with the principle of proportionality. This Regulation respects all fundamental rights and observes the freedoms and principles recognised in the Charter as enshrined in the Treaties, in particular the respect for private and family life, home and communications, the protection of personal data, freedom of thought, conscience and religion, freedom of expression and information, freedom to conduct a business, the right to an effective remedy and to a fair trial, and cultural, religious and linguistic diversity. ([Regulation 2016/679](#)).

moment it is being *communicated* ([Jungnickel 2020](#); [Gugganig and Douglas-Jones 2021](#)). To groups working in STEM fields, saturated with documentation, we would ask what documents, policies, regulations or white papers would you convene around? Who would you invite, to speak back to these performances of knowledge? What conversions would you use them to have, and where would you want the newly invited poet-voices and their interpretations to circulate?

Meeting Students: Research Interrupted

Our final example, instead of bringing people into the physical lab, takes the lab, its infrastructure and people, outwards to students around the world. In March 2020, as the Covid-19 pandemic swept the globe, fieldwork for ethnographers changed. Methods discussions were suddenly central beyond ETHOS lab in a way they had not been since the lab began. Alondra Nelson, chair of the US Social Sciences Research Council, asked what ethnographers would do:

How do we account for the information that might be lost when physical contact is not possible, the inability to see gestures like toes tapping and nervous hands, the ‘intersubjective encounter’? (Nelson 2020).

Within our own institution, PhD students and their supervisors were struggling with the implications: some students remained in the field, willingly or stuck. Internationally, it was clear that others were required to return – whether to a home in their university, or to a home that was elsewhere, neither fieldwork nor university. On Twitter®, PhD students and fellows shared the new and sudden struggles of research that had been interrupted.

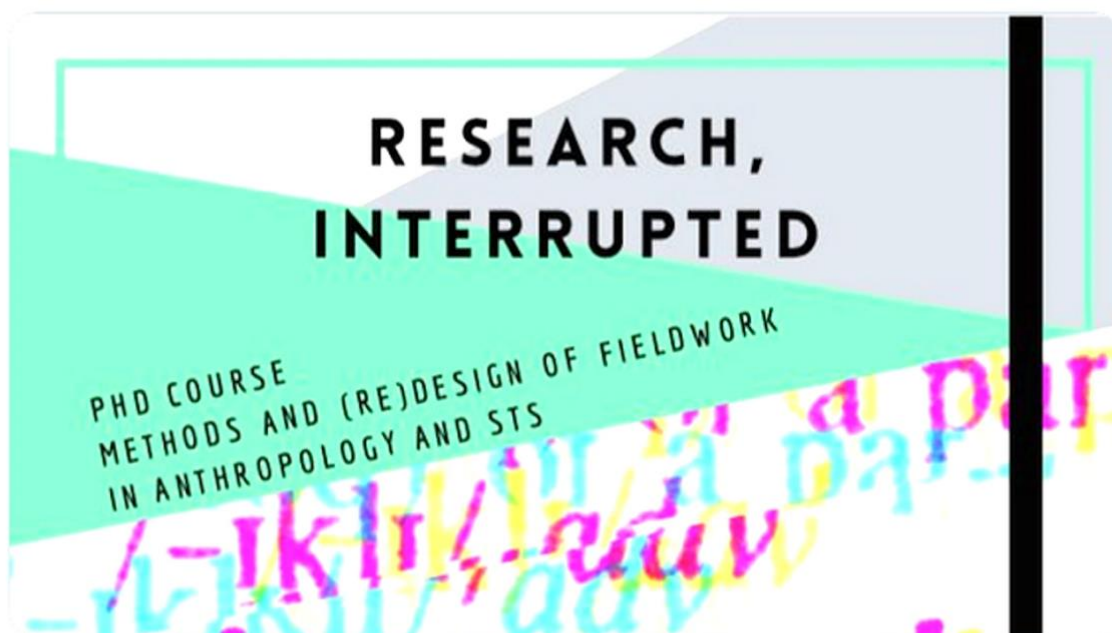
By April, a month after the first pandemic lockdowns in Denmark, the ETHOS lab was planning a PhD course to engage these questions of method. A PhD course is a form of doctoral training required during Scandinavian PhD programs which grants credits under the European Credit Transfer and Accumulation System (ECTS, see also [Karran 2004](#)). Our decision to host a PhD course online came from the needs of our local PhD students, primarily early-stage scholars facing three years of their doctorate, seeking advice and guidance from faculty. What was the future and feasibility of their projects in the face of closed borders, grounded planes? As much as methodological guidance, students separated from peers and universities as contexts for their scholarly development *needed one another*. The pedagogical principles operating here were to do with connecting students to one another, allowing for discussion between students and globally distributed faculty, and providing a frame through which a sense of an adjusted future could emerge. Amidst discussions of a ‘digital pivot’ and ‘online ethnography’, ETHOS lab, as a methods lab, took the decision to convene a course that centered the way that methods produce what and how we know. We called it ‘Research, Interrupted’ ([Douglas-Jones and Meldgaard Kjær 2020](#)). Once advertised on Twitter ([figure 4](#)), the course was rapidly oversubscribed. From an initial estimate of 20 participants, we were soon counting applicants in the hundreds.



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Calling early-stage anthro/STS PhD students! In June, @katrinemkjaer and I will host an online PhD Course @ethosITU. It's called "Research, Interrupted". Info here--> en.itu.dk/research/phd-p...



12:15 PM · May 18, 2020 · Twitter Web App

||| View Tweet analytics

110 Retweets 17 Quote Tweets 190 Likes



Figure 4: Screenshot of Call for participation in Research Interrupted, Twitter, 18th May 2020.

While we already knew that Zoom was the only feasible format (universities were closed, travel was impossible), what form could possibly provide support to such numbers? Discussions ensued between Katrine and Rachel as organizers, and Marie and Luuk as lab staff. Unprepared for a selection process, we

concluded we would run the course twice. ‘Course 1’ would go as planned, synchronously online, with local students who had requested the course, a lottery system selecting the remainder. ‘Course 2’ would run asynchronously, as an experiment in distributed remote learning, for over a hundred students who had never met.

We were able to keep our pedagogical priorities in sight even as we moved the ethos of the lab online. ‘Course 1’ ran synchronously over three days. Given the time–zone, the majority who accepted the lottery selection were based in Europe or a few time zones either side. Zoom fatigue was already a recognized phenomenon by June 2020, and building on principles of accessibility, we kept the sessions fairly short (2hrs either side of a break at European lunchtime). Students joined us from their living rooms in our Zoom Room over the three themed days: Interruption, Expansion, Speculation. *Interruption* acknowledged the deep cut in time that global lockdowns had caused for students, many of whom were near the beginning of their projects. Their sense of loss was something to tackle immediately: acknowledgement of the felt break in futures. *Expansion* and its associated texts addressed the need for a more open, exploratory attitude towards both the field and what fieldwork might look like. And *Speculation* was designed to open up time again: towards what futures were projects now oriented? We located the organizing portal on Google (see [figure 5](#)), rather than our institutional systems (which required logins and credentials) but the university file management and Zoom subscription provided the underlying infrastructure of file storage, upload, and link provision.

Shortlist of all important links	Day 1: Interruption Wednesday June 10th		Day 2: Expansion Thursday June 11th		Day 3: Speculation Friday June 12th		Exam June 19th
Resources, readings, slides	Readings (password: Interrupted2020) Workshop Resources folder for Day 1 Live Google doc for Q/A notes		Readings (password: Interrupted2020) Workshop Resources folder List of Methods Live Google doc for Q/A notes		Readings (password: Interrupted2020) Workshop Resources folder Homework Live Google doc for Q/A notes		Please fill out the evaluation form Thank you!
Timezone CET/GMT+2	Activity	Zoom Room	Activity	Zoom Room	Activity	Facilitation	
Session 1 10-10:45	Welcome to Research, Interrupted! Meet your Group	Plenum Zoom room Password: Interrupt Breakout Groups	Introduction to Expansion What does expanding your methods toolkit mean?	Plenum Zoom room Password: Interrupt Breakout Rooms	Live Discussion, Marianne Clarke, The Vitalities Lab, Q&A Live Google doc for notes	Plenum Zoom room Password: Interrupt	Exam Information Upload the file here - please note that the only confirmation you get is the file is listed on the screen under 'Uploads': If in doubt, send it to ethos@btu.dk
Break (15)							
Session 2 11-11:45	The Ethnography Studio Andrea Ballesterio, Yesmar Oyarzun, Katie Ulrich and Mel Ford	Plenum Zoom room Password: Interrupt	Marianne Clarke, The Vitalities Lab The Pandemic Pivot: Relationality and physicality in uncertain research contexts	Plenum Zoom room Password: Interrupt	Introduction to Speculation Laura Watts, In Conversation	Plenum Zoom room Password: Interrupt	
Break (2h)							
Session 3 14-14:45	Discussion of Keynote and preparation of question presentation	Plenum Room, with breakout groups Zoom room Password: Interrupt	Discussion of Keynote and preparation of question presentation	Plenum Zoom room Password: Interrupt Breakout Rooms	Forum Workshop Zoom room Password: Interrupt	Plenum Room, with breakout groups	
Break (15)							
Session 4 15- 15:45	Live Discussion: Andrea Ballesterio, Yesmar Oyarzun, Katie Ulrich and Mel Ford, Houston, TX Wrapup and Reflections	Plenum Room Zoom room Password: Interrupt	Facilitated Breakout Discussions Wrap up and Reflections	Separate Group Rooms Group 1 Group 2 Group 3 Group 4 Password: Interrupt	Live Discussion: Anand Pandian Zoom room Password: Interrupt Live Google doc for notes Closing Remarks Circulation of Feedback link	Exam format + questions Fill in at the end	

[Figure 5](#): Screenshot of Research Interrupted Organising portal, linking to Zoom rooms, videos, worksheets, pre-recorded lectures and Q&A notes.

'Course 2' began the following week, although preparations had been going on continuously, sorting applications, groups and schedules. This *asynchronous* version of the course used the same three-day structure, but offered the resources (pre-recorded keynotes, recordings of the Q&As, workshops) to small groups of students who met independently, according to their own schedules. From the 147 who were not selected (by lottery) for the synchronous version, we collected their time-zones (from GMT -8 to +10) and research topics. Rachel sorted them into groups where there would be only a few hours time difference between their locations, and where possible, a resonance in their research topics. Lab staff Marie and Luuk notified students of their groups and gave them access to the online materials. Three types of artifacts guided their study: a second version of the online overview document, a folder containing brief introductory videos for each day from Rachel and workshop guides to support group discussions. These guides contained suggestions on how to split the time if internet connections weren't so strong, as the course still relied on in-person gatherings for discussion and analysis. Across the world, 19 groups of 4–8 students uploaded reflections on the texts, keynotes, and their own group practices. In the weeks afterwards, exam submissions rolled in. Participants had been asked to write a speculative essay, looking back on their PhD from the point of its completion and analyzing the changes they had made to their approach. The creativity in these essays was wonderful – graduation ceremonies imagined, letters written to new-starting students, fictional dialogues and plays. Students sent in notes of thanks, both to colleagues around the world who had come together to record videos and to the staff and members of ETHOS lab who had organized the course itself.

'Research Interrupted' was a pedagogy that, by necessity, foregrounded ways of knowing not premised on certainty or stability. It built on approaches that have a long history in distance learning, including the feminist concern of 'students' lives and concerns being treated as material for learning ([Omolade 1987](#)). In contrast with institutional plans, the expectations of ethics review committees, and the bureaucracy of PhD pedagogy, the challenge facing supervisors and scholars as the research impacts of Covid-19 became evident was how to return uncertainty, the emergent, and possibility to the forefront of lived education? The emphasis of many guest speakers was on how *normal* it was for things to not go to plan. For others looking to STS collaborative formations for feminist ways of doing pedagogy, the challenge the course poses are: where, within pedagogical pressures, planning and frames, do we make space for the unexpected? Where, in a very basic way, do we center student concerns and allow for teaching as a relationship of care? ([Atenas et al. 2022](#), following [Spivak \[1993\] 2009](#)). Where can your teaching cultivate spaces of belonging, within or alongside formalistic requirements?

Discussion

ETHOS lab has been an experiment in pedagogy from the beginning. Opening this article, we suggested that a certain kind of groundwork was necessary for our lab to effectively convene around method as a meeting place between disciplines in an interdisciplinary institution. The groundwork described in this article is, we suggested, a version what Kempson, Stone, Ranade and Hannah have described as the work of feminist placemaking. What for Kempson is oriented at objects like zines, knitting and craftwork ([2015](#)), Stone et al., take up as the way 'feminist educators must make space in their pedagogical practice', especially 'in a discipline where such topics are deemed to be unusual and thus are often negatively received' ([2020](#)). For us, activities, practices and environments prized open spaces for the kind of questions we wanted to be able

to ask. They have taken place in a lab space reflexively configured as institution building, using the semiotics and physicality of the lab space primarily to build relations and participation through material means. Using STS sensibilities, we asked how ETHOS lab as an assemblage of walls, windows, pens, Post-its, objects, posters, texts, could be turned into a probe for asking “who are we” here together, within the walls of this university, with what attachments and affinities? The lab was not only built so that students and researchers could inhabit it, but as an experiment in asking how we arrive at alternative modes of engagement within a technical university.

Making space has also meant working with time. As the three examples show, conscious engagement of divergent temporalities features heavily in our praxis. The requiem, erasure poetry and PhD course described in this article operated outside the temporal frame of the university: the end of life of a research object, the launch of a regulation, or the interruption of a pandemic. We have made them openings for engaging the world as co-inhabitants of the university, but in many cases, these openings for co-habitation across disciplinary boundaries are temporary. This applies equally to the times of institutions: interdisciplinary programs or labs often arise at particular moments when there is an opening, a kind of window created at the interstices of institution building, where certain collectives come together.¹⁰ Such openings are of finite duration, needing the right conjunction of people and place coming together. ETHOS lab made use of an opening that arose at a specific institutional moment.

Rather than offering a formula for how to build a feminist STS lab, then, the events recounted here as acts of ‘enlivening’ build on hooks’ invitation to draw out on the *excitement* of higher education ([hooks 1994](#)). Enlivening is a situated practice. For Stone et al., DIY feminist placemaking involved gathering and ‘encounter[ed] feminist topics in private spheres’ in the absence of ‘courses that directly explore feminist ideas’ ([ibid.](#)). For us, it has meant creating events, spaces and objects where students and faculty can come to see the shared stakes of how education in the name of technology and its management takes place. If feminist teaching re-examines and re-imagines ‘the relationships between teachers, students and society’ ([Crabtree, Sapp, and Licona 2009, 4](#)) then ETHOS lab contributes to this project by making opportunities for these relationships to be made and re-made outside the course of traditional courses and examination structures. Interdisciplinary critical feminist scholars working within technocratically run universities can carve out space for humanistic, feminist, critical inquiry, but not alone. Our recommendations to others would be to think about the material and organizational forms required to open certain questions, and to keep those spaces for questions alive.

Make Space: As employees at a technical university, we are tasked with cultivating students who can enter the digital economy as part of ongoing modernization project – the ‘lab’ environments within the university is part of the infrastructure of this project – offering access to tools, machines, which embed material knowledge say of laser cutters or 3D printers. However, whether in the creation of a ‘control room’

¹⁰ With thanks to Kavita S. Philip for this insight, based on her oversight of the ‘Arts Computation Engineering’ program from its inception to its closure during her tenure at University of California, Irvine.

environment to honor Cassini, or the shaping of the lab into a space of poetry-making, we have used the lab's physical infrastructure in key ways to shape spaces of experience. Larkin acknowledges that the object of 'infrastructure' is generative in its 'productive instability [as a] basic unit of research' – and it may be 'built things, knowledge things, or people things' ([Larkin 2013, 329](#)). Our lab combines all three and we acknowledge the work that infrastructures do to 'form us as subjects . . . on a technopolitical level' showing through our accounts of community formation the way they 'mobilize . . . affect and the senses of desire, pride, and frustration' ([ibid., 333](#)).

Cultivate Affect: Sometimes this challenge is merely in the choice of topic. An erasure poetry session might be an ordinary academic gathering in a humanities department, but in a technical university it challenges the boundaries of what 'belongs' in the institution. At other times, it is not the topic but the approach, allowing affect that pushes the boundaries of the institution: What does it mean to feel sadness at the passing of a satellite in the company of others in a room at the university? What university assumptions of a university can be affectively rejected, perhaps through orienting a graduate course from the needs of the students in a time of global crisis, instead of fixed 'intended learning outcomes' decided months ahead of time? In her analysis of water bureaucracies and tools, Andrea Ballesterio remarks that technocratic work needs to be seen by STS not as a 'wonder killer' but a 'wonder inducing' site ([2019, 32](#)). What would it take to induce wonder as a key instrument in pedagogical placemaking for STS within technocratic environments?

Experiment with Time and Duration: From institutional time to common public temporal moments, sequence, pattern and aftermath. The requiem brought into the university an event that had a telos, a time of its own, a moment happening in real time, which could stitch people together into a shared timing. As Beth Freeman puts it, 'nonsequential forms of time' such as 'haunting, reverie, and the afterlife' . . . 'can fold subjects into structures of belonging and duration that may be invisible to the historicist eye' ([2010, xi](#)). The 'death' of Cassini interrupted the flow and routine of our daily work lives in such a way as to fold together the biographical, the personal, as lived in the *durée*, through a moment of ending taking place in phenomenal time. In our experience, these structures of belonging and duration have long outlasted the event itself.

Explore Knowledge Belongings: While we, like many, are called to focus on research-based learning, a strength of the lab has been through its ability to conjure a sense of belonging by inviting students in directly as participants in knowledge production, and question asking. While it was entirely intentional that the lab space would blur research and teaching, official narratives focus primarily on research-based teaching. What the lab work has given us is, additionally, a space of teaching-based research. Students are living lives within technocratic spaces, spaces which include their own educational choice to be within a technical university, in ways that make them equally experts in working materially with the forms that pedagogy takes. They bring questions when they are invited into more-than-academic spaces, whether temporary belongings of requiems or poetry collections, or the more permanent fairy lights and sofas of our former printer room.

Working productively with the instability of what counts as a 'lab' has brought us to stage events that trouble hierarchies of knowledge that would place the personal, experiential, and affective outside of

the conduct of research. The trouble these research-teaching interventions cause is to smooth pedagogy in service of technocratic employability of our students. This troubling, this *good* trouble, underwrites participation in the life of the ETHOS lab, and gives it generative potential. As such, we argue that the idea of a lab – in our institution, and prospectively in yours – is *enlivened* by these pursuits. Stitching the phenomenal, biographical, and political through singular events breaks the molds, both physical and temporal, into which ‘Pedagogy and Learning Activities’ are meant to be contained. Seeing the effects, we advocate for a ‘poetics’ of a lab as infrastructure, thinking about how the lab itself as a material and semiotic arrangement, or the events we plan and stage, as ways to “‘rearrang[e] the hierarchy’ of what can be signified within the ‘speech event[s] dominant at [the given] moment’ ([Larkin 2013, 335](#)) We continue our work with experimental openness towards an unknown, and a willingness to embrace the co-production of meaning in and beyond the university itself.

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Data Availability

Data published in these article can be accessed in STS Infrastructures at: <https://n2t.net/ark:/81416/p4z88b>.

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