

Collaborative Formations at the Intersection of Pedagogy, Engagement, and Research

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Abstract

Science and Technology Studies (STS) pedagogies constitute a dynamic form of STS practice that occurs in formal and informal spaces, and in a variety of disciplinary and interdisciplinary programs with different goals and objectives. This thematic collection of articles in *Engaging Science, Technology, and Society (ESTS)* turns an analytical gaze on the spaces, practices, artifacts, and interactions through which STS pedagogies are enacted. Specifically, it foregrounds pedagogical engagements that have emerged through “collaborative formations” such as STS labs, clinics, workshops, community-based projects, co-teaching and other multi-temporal, geographic, and/or organizational configurations. We delve into fundamental questions about what might constitute “STS pedagogies” more broadly and how STS teaching and learning might be understood in various ways. The articles included in the collection challenge the conventional separation between research and pedagogy, suggesting that STS pedagogical scholarship can disrupt hierarchical structures that prioritize research over teaching. We start by discussing what we understand as “STS pedagogies,” what STS pedagogical scholarship might look like, and how it relates to “collaborative formations.” We then describe the infrastructure established to facilitate thinking across the collaborative formations and the multi-year process to produce the manuscripts and their accompanying data artifacts. We hold that focusing on STS pedagogical practices can open new avenues of inquiry within the field of STS, enabling critical interventions and actions in various contexts.

Keywords

STS pedagogy; collaborative formations; feminist pedagogy; data artifacts

Introduction

Science and Technology Studies (STS) pedagogies constitute a dynamic form of STS practice that occurs in formal and informal spaces, and in a variety of disciplinary and interdisciplinary programs with different goals and objectives. This collection of *Engaging Science, Technology, and Society (ESTS)* turns an analytical gaze on the spaces, practices, artifacts, and interactions through which STS pedagogies are enacted. Specifically, it foregrounds pedagogical engagements that have emerged through “collaborative

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To cite this article York, Emily, and Angela Okune. 2024. “Collaborative Formations at the Intersection of Pedagogy, Engagement, and Research.” *Engaging Science, Technology, and Society* 10(1–2): 88–102.
<https://doi.org/10.17351/ests2023.2389>.

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formations” such as STS labs, clinics, workshops, community-based projects, co-teaching and other multi-temporal, geographic, and/or organizational configurations.

The impetus to focus on such formations was to facilitate collaborative thinking amongst the contributors to this collection regarding a range of questions, including how to practically and theoretically understand STS pedagogies as distinctive practices, how to consider STS pedagogies in and beyond formal classroom spaces, how such collaborative formations—and the geographical locations, institutions, and disciplinary configurations in which they form—might uniquely shape pedagogical engagements, how a focus on pedagogy might open up questions and insights with respect to STS theory and knowledge production, and how to write about STS pedagogies in ways that are at once practical and scholarly. We also wanted to ask fundamental questions about what might constitute “STS pedagogies” more broadly and how STS teaching and learning might be understood in various ways, possibly as “applied” STS, as politics, knowledge production, community formation, simulation, institutional transformation, experiment, or critical participation, to name a few.

We might consider STS pedagogical engagements as practices that, like “making and doing” more broadly, “. . .enact two-way, or multiple-way, flows of STS knowledge” ([Downey and Zuiderent-Jerak 2021, 3](#)), and that regard teaching, learning, and knowing not as individual cognitive processes but as participation in a social world ([Lave and Wenger 1991](#)). If STS understands knowledge production as situated, social, messy, nonlinear, and emerging through the work of material-discursive practices shaped by power dynamics—a partial characterization, at best—do such insights inform not just the content of STS pedagogies, but also the collaborative formations and modalities through which STS pedagogical engagements are theorized and enacted?¹ And does a critical orientation to pedagogy as an object of study offer possibilities for interrogating and destabilizing boundaries between teaching, learning, engagement, and research?

STS pedagogical scholarship has the potential to disrupt hierarchies that value research over pedagogy and that reinforce a philosophical separation between the two, where the former is aligned with novelty, knowledge production, external funding, external validation, and public recognition; and the latter is cast as invisible service and reproduction.² Bringing a critical STS lens to STS pedagogical practices can make visible and challenge implicit assumptions about the linearity or individuality of knowledge production. Such assumptions would seem antithetical to key STS insights yet might linger within ossified institutional frameworks that attend to individualized and disciplinary counts of grants and publications for promotion and tenure while relegating teaching to untenured or untenure-able labor.

This collection posits that focusing on STS pedagogical practices opens up new lines of inquiry about STS that have implications not just for pedagogical strategy but also STS as a field, including its capacities for developing and extending STS modes of critical intervention and action in the world. What

¹ See, for example, Jenny Reardon et al. ([2015](#)) with respect to the Science and Justice Research Center at UC Santa Cruz and with respect to The CLEAR Lab ([2021](#)); both trace connections between STS knowledges, the organizational form and practices of the center and lab respectively, and approaches to STS pedagogy and mentorship.

² See Sara Giordano ([2017](#)) for a call to see feminist science teaching as knowledge production.

does an STS scholar–practitioner–teacher think they are doing, precisely, when they are engaging in pedagogy, whether that engagement is in an undergraduate classroom, a graduate seminar, a community-engaged project, a position in the public or private sector, or in a multidisciplinary research project? How might STS work that occurs outside of STS-specific curricular programs constitute a form of critical “political pedagogy” ([Giroux 2020](#))? In what ways might some research engagements simultaneously enact pedagogical work across disciplines or across different communities of practice? How might pedagogical sites serve as experimental spaces through which to develop STS theory and methods? How might STS pedagogies articulate STS as a field—its substance and its value—for STS scholars, teachers, and practitioners, and their students, colleagues, and interlocutors?

What Are “STS Pedagogies” and What Does STS Pedagogical Scholarship Look Like?

One challenge for a scholarship of STS pedagogies concerns the specificity with which they emerge in practice. If there is not one “STS” but rather multiple STS’s ([Kaşdoğan and Okune 2023](#)), there are even more pedagogies that arise in relation to STS at the intersection of different geographical locations, institutions, disciplines, communities, times, and learning objectives. STS scholars trained in a variety of disciplines, and located within diverse spaces and material conditions, improvise and develop an array of strategies drawing on content that may include elements of theory and practice from different STS traditions alongside content and approaches from the fields and norms that are at work in their pedagogical site (see Monamie Bhadra-Haines’ contribution ([2024](#)) in this collection for an account exemplifying this).

Although there have been classic STS resources designed for teaching STS as an interdisciplinary field with its own content and methods,³ much of the scholarship published around doing and thinking *with* pedagogy—at least in the context of the academic field of STS⁴—has emerged within feminist science studies, building on a robust tradition of feminist and critical, liberatory pedagogies (see, for example, [Asher et al. 2021](#); [Barad 2000](#); [Bozalek et al. 2018](#); [CLEAR 2021](#); [Giordano 2017](#); [Hinton and Treusch 2015](#); [Kenny, Liboiron, and Wylie 2019](#); [Lehr 2007](#); [Subramaniam and Middlecamp 1999](#); [Reardon et al. 2015](#); [Schmitz 2015](#); [Vora, McCullough, and Giordano 2022](#); [Whatley 1986](#)). The contributions in this collection are steeped in critical and feminist pedagogies and reflect a strong interest in drawing on STS pedagogies and practices to facilitate collective action and social change.⁵

Generally engaged in constructivist approaches to learning STS, contributions here not only seek to open up the “black box” of science ([Latour and Woolgar 1986](#)) but also the “black box” of STS, and also to

³ Many of these resources seem to be aimed primarily at an undergraduate audience, e.g., *The Golem* series (Collins and Pinch [1998](#), [2012](#)); Johnson and Wetmore’s *Technology and Society: Building Our Sociotechnical Future* ([2008](#), [2021](#)); McGinn’s undergraduate textbook *Science, Technology, and Society* ([1991](#)); Volti’s *Society and Technological Change* ([2017](#)).

⁴ There is a rich tradition of science, technology, and society (STS) in K-12 science education that goes back to at least 1971, and has historical connections to the growth of science and technology studies as an academic field (see, for example, [Pedretti and Nazir 2011](#) and [Aikenhead 2002](#)). An exploration of this genealogy is outside the scope of this introduction and collection.

⁵ A number of contributions engage with critical pedagogy that is not explicitly STS, including the work of Paulo Freire ([2000](#)), bell hooks ([1994](#)), and Henry Giroux ([Giroux 2020](#)).

embrace the sensibilities and practices of critical pedagogies that are interested in empowering students (and other actors) to “expose and deconstruct cultural hegemony” ([Ross 2017, 611](#)). They are interested in feminist pedagogies that, to follow Banu Subramaniam and Catherine Hurt Middlecamp, share genealogy with critical and “alternative pedagogies” but “focus on women and their experiences both in and out of the classroom” ([1999, 520](#)) and that interrogate gender more broadly, as well as feminist, queer, and anticolonial STS pedagogies that critically attend to politics and questions of justice, to material conditions and situated knowledges ([Haraway 1988](#)), to relationality, power dynamics and agency, and to hegemonic knowledges and logics of imperialism and capitalism (to name a few matters of concern).

In these concerns, and in their explicit engagement with collaborative formations, they align with a distinction made by Ruha Benjamin in her 2016 keynote at the International Society for Technology in Education, between preparing students to “play the game of life” or to “hack the current system” ([Benjamin 2016](#)). Benjamin uses these metaphors to “distinguish between personal and collective empowerment,” where the former is about succeeding as individuals and the latter is about “. . .how to work together to change the underlying codes that structure their lives and reproduce inequity” ([ibid.](#)). Yet this is a distinction that doesn’t take a single form, but plays out differently in contemporary STS pedagogies in various disciplinary, institutional, and geographic locations—from the Feminist Theory Theatre experiments in a university setting in California and in a state prison ([Aushana et al. 2024](#), this collection) to erasure poetry sessions in Denmark with the ETHOS Lab ([Douglas-Jones et al. 2024](#), this collection) to civic engagement in creating data stories about violence with the KALEIDOS center in Ecuador ([Suarez et al. 2024](#)).

While pedagogical scholarship can be found in most STS journals, it is difficult to find a robust tradition with a dedicated outlet. The journal *Catalyst: Feminism, Theory, Technoscience* is notable for its frequent inclusion of articles about pedagogy, and *Engaging Science, Technology, and Society* under the current vision of the editorial collective includes pedagogy as one of its four aims. Engineering studies is an interdisciplinary community represented through the *International Network of Engineering Studies* and the *Engineering Studies* journal that has a focus on linking scholarly work to broader domains of practice including pedagogy and critical participation. Here, there are strong connections to STS and often similar groundings in feminist and liberatory pedagogies (for example, [Beddoes 2012](#); [Baillie and Pawley 2012](#); [Cech 2014](#); [Downey et al. 2007](#); [Leydens and Lucena 2017](#); [Riley 2003](#); [Riley et al. 2009](#)). This area of pedagogical scholarship, albeit more specifically focused on engineering, offers another source of inspiration for examining how writing about doing and thinking with pedagogy can work as a form of scholarship that is generative of theory building and community building. Another journal that is engaged with STS and that explicitly includes pedagogical submissions is the *Journal of Responsible Innovation*.

STS pedagogical scholarship, then, is not new. Neither has it been such an area of publication focus that there is an obvious canon, although recent annual meetings of the Society for the Social Studies of Science (4S) suggest growing interest in forging communities of practice that explicitly engage pedagogy. In discussions with contributors to this collection, recurring questions emerged about whether and how STS as an interdiscipline brings particular objects of inquiry, theories, practices, and histories to bear in developing pedagogies in the disciplinary, interdisciplinary, formal and informal sites of learning in which STS scholars find themselves. What happens when pedagogical sites are understood simultaneously as sites of research and engagement? Or, when research or sites of community and public engagement are seen as sites of mutual teaching and learning? To follow Vivienne Bozalek, Michalinos Zembylas, and Tamara [Shefer](#), we

might ask: “How does breaking binaries and dualisms such as between research and teaching allow questions to be asked about current forms and open up ways of being and doing differently in socially just pedagogies?” (Bozalek, Zembylas and Shefer in [2018, 4](#)). And finally: what might STS pedagogical scholarship as publication look like?

The interests here are to think with critical STS and STS-adjacent pedagogies, to recognize and value the important pedagogical labor of scholars working *in* and *with* STS, and to center pedagogy as a starting point for asking questions about knowledge production, methodology, agency, politics, institutions, and justice. The contributions here, and the examples of pedagogical scholarship cited in this introduction, reflect rich theoretical and methodological engagements that inform approaches to STS pedagogy, a variety of collaborative formations that attend to the ethics of collaboration and the affordances and constraints of institutions, a politics of critical and reflexive and careful intervention, and a dense traffic between activities that might be characterized as research, pedagogy, and/or engagement.

The writing itself, as genre, reflects this complexity—these are not forms of pedagogical scholarship that look like Scholarship of Teaching and Learning (SoTL) studies that demonstrate student learning via pre- and post-tests, or teaching demos that assume readers will reproduce a specific practice in a straightforward way, or accounts of simply transmitting STS concepts in the classroom. But neither does STS pedagogical scholarship always claim the form of novelty expected by other forms of academic scholarship. While authors put forward insightful arguments, methods, and accounts of experimental practice, and sometimes coin terms for particular approaches (see “feminist theory theater” ([Aushana et al. 2024](#)) and “techniques of local retrospection” ([Chan 2024](#)) in this collection), authors also emphasize the situated contexts and contingencies of their accounts, and demonstrate humility and indebtedness to the many sources of pedagogical insight that are often co-developed with students and colleagues and inspired not only by citable literature but by various mentors and observed practices over time.

Collaborative Formations and Process

Why “Collaborative Formations”?

Linkages between feminist pedagogies and STS can be seen in a variety of collaborative formations that often blend and even blur the boundaries between research, teaching, and engagement, with commitments to forging new kinds of knowledges, infrastructures, and institutions that support “successor science” projects (i.e., grounded in feminist epistemologies, [Harding 1986](#)) and political work.

For example, the public version of the CLEAR Lab Book (the Civic Laboratory for Environmental Action Research at the Memorial University of Newfoundland and Labrador) describes their lab book as a “collective effort based on extended and collaborative consensus-based decision making” that serves as a guide for the Lab’s “specific feminist and anticolonial flavour” ([CLEAR 2021, 4](#)). It opens with:

At CLEAR, one of our primary goals is to change how research is done. We are equal parts plastics pollution lab and methods incubator. Rather than assuming we are value-neutral or that the product of research is more important than process, we work towards humility, accountability, collectivity, and good land relations (anticolonialism) in everything we do, from how we run a lab meeting to how we take out the trash ([ibid., 5](#)).

The CLEAR Lab Book not only speaks to how the Lab does research and why and to what ends, but serves as a pedagogical artifact, with traces of the collectives' learning documented throughout, with indications of how the Lab *does* pedagogy as part of its practice, and as a document shared publicly for readers to engage with in their own research and teaching. Importantly, especially for this collection, even as it champions the collaborative nature of the CLEAR Lab's approach to working with various entities, it also notes that collaborations "...are not inherently good" and "...can reproduce power structures" ([ibid., 6](#)). This serves as an important reminder for reflecting on how to do collaboration in the context of critical STS pedagogies in ways that recognize power dynamics and support ethical relations and practices.

Sometimes collaborative formations take the form of different entities aligning around a shared pedagogical interest, as described in a lab meeting write-up about a Boston-area gathering entitled "Cyborgs Unbound: Feminist STS, Interdisciplinarity, and Graduate Education." Here, Asher and collaborators write that the "...Consortium insisted upon interdisciplinary feminist education, scholarship, programming, and community building, all of which benefit the area's science and technology studies (STS) programs" ([2021, 2-3](#)). The pedagogical focus of this work is necessarily connected to the work of place-based scholarship and community building, with the figure of the cyborg and the interdiscipline of STS serving to orientate persons toward each other as learners.

Other collaborative formations come together around specific pedagogical engagements. In a project that draws on feminist science studies, place-based scholarship, and in this case participatory-action research, Kristinia Lyons and Marilyn Howarth outline their online pedagogical collaboration that emerged during the global pandemic in the fall of 2020. This project involved teaching environmental humanities at the University of Pennsylvania in conjunction with working with civil society initiatives in Columbia. They write:

In line with Rappaport's ([2016](#)) shift of focus from collaborative research to research through collaborative relationships, we placed emphasis not only on the product that would result from our interactions with community partners, but also on building collaboration as a chain of multifaceted conversations to support flows of shared learning between students and their Columbian partners ([2022, 3](#)).

Their project describes the co-design of a bilingual Digital Environmental Justice Storytelling platform, and its potential to provide "...ways to join in solidarity with these community and citizen-led efforts" ([ibid., 4](#)).

With a focus on creating spaces and practices that support collaborative, multidisciplinary pedagogies and knowledge production, the Science & Justice Research Center at the University of California Santa Cruz likewise supports "flows of shared learning" ([N.d.](#)) across disciplines as well as between the university and community. The Science & Justice Training Program (SJTP) is "designed to teach graduate students how to identify and respond to the entanglement of science and engineering with matters of ethics and justice," and is connected to the broader strategies of the research center, that include "forging experimental spaces," "improvising collaborative practices," "cultivating emergence alliances," and "building civic spaces." Reardon et al. write:

Taking its inspiration from recent feminist science studies re-workings of responsibility as response-ability, founders of the SJTP created novel pedagogical and research practices that enabled collaboration across all divisions of the university. A focus on justice proved critical to our efforts. ([2015, 2](#)).

Nearby at the University of California Davis campus, the “Asking Different Questions” National Science Foundation (NSF) project with principal investigators Sara Giordano, Sarah McCullough, and Kalindi Vora explicitly engages feminist pedagogy, and hypothesizes that “changing research questions and research agendas will change who is in STEM and the knowledge that is produced” ([Alston-Stepnitz 2019](#)). Pedagogical practice in these examples is a collaborative, interdisciplinary, political practice that foregrounds relationality and standpoint as it enacts a site of knowledge production.

This collection’s focus on collaborative formations draws inspiration from these various examples, and sees collaborative formations as a potentially useful entrance for examining critical STS pedagogies as social practice. Indeed, this collection itself is envisioned as a collaborative formation at the intersection of pedagogy, engagement, and research. Contributors were invited into this collaboration, to think with and through it. In late 2020, a targeted CFP was shared with possible contributors. We (York and Okune) hosted the first of a series of synchronous calls to discuss expectations of the thematic collection and introduce contributors to the [Platform for Experimental Collaborative Ethnography](#) (PECE). We explained to contributors that participating in this particular thematic collection included producing both a written narrative text to be published on the *ESTS* platform, as well as submitting accompanying data artifacts to further augment the narrative and offer pedagogical resources for the STS community.

Infrastructure for Thinking Across Collaborative Formations

We set up a private shared workspace on PECE for all members of the authorial teams to work within. One of the first materials shared between the contributing groups were draft abstracts for their papers. Then, we asked contributors to upload 12 data artifacts that relate somehow to their collaborative formation into the shared workspace. Examples suggested included an image (e.g., of the founding team or an engagement), a mission or vision statement, a shared document, or anything that might connect to the analytic questions: “What people, projects, and practices exemplify this collaborative formation (at the intersection of pedagogy, engagement, and research)?” or “How does this collaborative formation enact and reflect on the relationships between pedagogy, engagement, and research?”

Building on the artifacts shared, we tasked each group to develop an extended data brief that proposed an argument for their full manuscript and the various data artifacts they would engage to make that argument. These briefs were then added to the shared workspace and a synchronous call was hosted where each group presented their artifacts and discussed the kinds of annotations they desired from others.

We paired the contributors and requested they review their partner’s data briefs and provide annotations to support the writing of the first rough draft manuscript. We offered a set of structured analytics ([York and Okune 2021](#)) to the contributors to use as they annotated each other’s work.

In particular, we suggested contributors focus on:

- How does this formation or practice reflect on STS as critical pedagogy?
- How does this practice help us think about engagement as pedagogy and/or pedagogy as engagement?

- What might support this pedagogical activity/approach to travel or be taken up in other contexts?
- What theoretical and methodological frameworks inform this STS pedagogy?

Following the peer-to-peer annotating process, we facilitated another discussion about emerging themes across the briefs. In the discussion, the group noted several shared characteristics of STS pedagogy across the different pieces. These included observations that STS pedagogy:

- brings visibility to the making of categories,
- confronts the physical and material aspects of the production of science,
- supports learners to contend with their structural/infrastructural conditions,
- designs towards a process of growing recognition of the role of the embodied self as a whole person who acts within existing fields of power.

A further observation was made across several collaborative formations that likely speaks to the “engagement” aspect of this collection. An author noted that in several of the manuscripts, not only was there description of the designed, curated element (e.g., a chapbook or a syllabus), there was also attention to an emergent or improvised aspect of the object and the dialogical process between the two (the designed object and the emergent effects of the object). The pieces included in this collection not only offer descriptions of various pedagogical objects and the values/concepts incorporated into their design, but also an account of what happens when that object becomes situated in practice. This relationship between the object and its uptake and movement perhaps is one that uniquely positions the way STS scholars both engage with pedagogy and also write about it.

Our call for contributions to this collection intended to push on the boundaries of what is considered pedagogical. By framing around “collaborative formations,” we wanted to invite reflections on STS pedagogies located outside of usual spaces of learning. We also sought to extend a priority of ESTS in recognizing the STS work going on outside of global North centers that may not necessarily frame itself as STS (or STS pedagogies to be specific). During the drafting process, we suggested contributors locate themselves in their contexts and include explanations about how that specificity shaped their STS pedagogy. As feminist standpoint theorists ([Harding 1992](#); [Hartsock 1983](#)) have taught, we found that locating the specificity of the STS pedagogical initiative increases the robustness of the analytic. This collection is far from complete, with notable gaps in the locations, institutions, and languages, among other factors, that are represented. However, we hope it provides an opening for further collaborations and additions with others contributing from various standpoints.

By drawing together this set of contributors to think from the outset with data artifacts, the group served as a space to work out what it might look like to write about STS pedagogies for a scholarly audience. The process and infrastructure described above held the different contributors together throughout the process of drafting and enabled early and iterative feedback on ideas that were surfacing during the drafting process. Through the various points of engagement, the contributors also grew their familiarity with the artifacts and ideas about data. However, such a level of engagement was not without its challenges, the biggest of which was the time and effort required. Our process was quite a contrast to a typical submission to a journal. With multiple smaller assignments building up over time, it could start to feel like it would take an outsized amount of work to “catch up” to the group if one or two meetings were missed. Over the course

of the two years of engagement, two groups withdrew because of such challenges; one new group joined mid-way through. These are part of the challenges of doing collaborative work over an extended period of time with competing commitments (during a period that overlapped with a global pandemic).

When we conceptualized the process for bringing this collection into formation, we imagined the data artifacts serving not as stand-alone pedagogical supplemental materials, but rather as the data or evidence with which to think about the arguments the authors wanted to craft. In retrospect, we note a wider range of possibilities across the artifacts. Some of the artifacts do indeed function as evidence for arguments and may best be understood as a multimodal layering of what is written in the *ESTS* publication (see for example Jorge Núñez et al.'s artifacts of and from the EthnoData platform (2022)). Others can possibly serve as more standalone materials with pedagogical (re)use (see for example Aushana et al.'s *Feminist Theory Theater Workbook* 2022). If you are interested in additional stand-alone exemplars, you may want to also take a look at the Alan Irwin collection (2023). We hope these examples of published data artifacts begin to give readers a sense of the forms and possible uses of published data artifacts with *ESTS*. By showcasing the range of these materials and their possibilities, we invite readers and future contributors to reflect on their own STS pedagogical scholarship and practices and share back with this community.

Summaries of Contributions

As a journal with a newly articulated aim to promote scholarship on pedagogy, *ESTS* is interested in what kinds of pedagogically oriented scholarship and publication best facilitates vibrant communities of practice engaged in STS pedagogies, mutual learning across disparate approaches to STS pedagogy as it is practiced in different spaces and places, and recognition and support for the kinds of creativity, labor, and intellectual contribution involved in this work. The contributions in this collection are intended to spark conversations across the *ESTS* readership in relation to these questions. The collection includes three *Original Research Articles* and three *Engagements* (essays).

The first research article, “Feminist Theory Theater: Acts of Reading as Embodied Pedagogy,” by authors Christina Aushana, Michael Berman, Yelena Gluzman, and Sarah Klein (2024), develops a pedagogical-performance methodology they call Feminist Theory Theater (FTT). FTT is a mode of “learning-in-movement” that builds on critical pedagogies, theater practices, and feminist theory, in which participants stage and re-stage texts in embodied collaboration. These stagings facilitate modes of situated learning in which texts and persons are enacted together, unsettling categories and roles, such as teacher, student, text, and university. FTT grounds interpretation in participants’ lived experiences and in the provisional shared world collectively enacted through attempts to interpret and perform texts. In narrating the creation and revision of FTT, the authors demonstrate too how its development through pedagogical engagement becomes simultaneously a mode of theoretical and methodological exploration that shape the authors’ on-going research and knowledge production. Accompanying the article is a zine-style workbook that readers can access through which they might also experiment with FTT as a critical STS pedagogy.

Monamie Bhadra Haines’ article, “(Self) Critical Pedagogy: Performing Vulnerability to Teach STS in Singapore,” (2024) interrogates the goals and strategies of STS pedagogy through a transnational lens, posing the critical question of “...whether and how to teach and translate critical inquiry of race, technology, and their intersections in institutions with political cultural dynamics that may [be] quite

different from those in which one is trained.” Drawing on her experiences teaching STS in Singapore, she rejects calls to perform disembodied expertise in the classroom, instead reflecting with her students on the personal-political through explicit engagement with her own identities and experiences, as Indian, as Employer, as Mother, as Public Scholar, and as American. Haines implicitly models “staying with the trouble” as she narrates a blend of critical self-reflection related to positionality and politics alongside her pedagogical choices. These choices demonstrate not only the creativity of what she does but what she does not do, what might be considered the power of refusal—refusal to adopt the recommended pedagogical approaches, refusal to fit within a box, refusal to avoid the uncomfortable, and refusal to share everything to achieve pedagogical goals.

In their article, “Spaceships and Poetry: Enlivening the Lab as a site of Feminist Critical Pedagogy,” Rachel Douglas-Jones, Baki Cakici, Marisa Leavitt Cohn, Simy Kaur Gahoonia, Mace Ojala, and Cæcilie Sloth Laursen (2024) demonstrate how the critical STS work of intervening in the politics of knowledge production can be made possible through the ETHOS Lab, a feminist STS lab. They highlight the work of “feminist placemaking” and the infrastructural and political work of literally creating space within a STEM-focused institution, as well as the potential of collaborations that span and blend research and teaching. Advocating for a “‘poetics’ of a lab as infrastructure,” they recognize that “enlivening is a situated practice” such that there is no one formula for doing this work. Yet they identify four practices that have supported their work: making space, cultivating affect, experimenting with time and duration, and exploring knowledge belongings. They offer a provocative challenge: rather than framing pedagogy in terms of “research-based teaching,” what becomes visible and possible when attempting “teaching-based research”?

Anita Say Chan’s essay, “Techniques of Local Retrospection: Socio-technical Pedagogy across the Community Data Clinic and the Biological Computer Lab,” (2024) argues for the need for “another form of data pedagogy” that understands data as relational, that makes visible the data and knowledge practices of vulnerable communities, and that counters a renewed fantasy of the “fall of history” oft articulated in the context of Big Data. Working with colleagues in the Community Data Clinic led to the collaborative development of “techniques of local retrospection”—a form of situated learning through archival engagement that invites interdisciplinary student inquiry into their own campus and the communities, activists, and various data practices that have animated its infrastructures. Connecting this pedagogical work to a previous experimental development of interdisciplinary socio-technical pedagogies that emerged in the Biological Computer Lab during the late 1960s, the essay provides insights not only for situated pedagogical practice concerning data but also for making visible broader genealogies of STS pedagogy.

The essay by Maka Suarez, Jorge Núñez, and Mayra Flores, “Teaching the politics of numbers with EthnoData: Ethnographic experimentations through statistics in Ecuador,” (2024) examines their creation and use of a collaborative digital platform, EthnoData, as a pedagogical tool for a variety of different audiences, including students, lawyers, statisticians, and journalists. Describing work that cuts across pedagogy, engagement, and research, the practices described here blend a critical pedagogy approach that centers the learner with a critical data studies/STS theoretical framework for interrogating classifications and complicating the numbers, and a critical making interventionist methodological sensibility that actively engages a variety of actors as collaborators and learners. Highlighting pedagogy as praxis, following Freire (2000), the authors illustrate the power of blurring boundaries between pedagogy, engagement, and research.

Finally, the “STS as a Critical Pedagogy Workshop: Experiments in Collaboration” essay ([Conley et al. 2024](#)) is a collaborative essay with over thirty authors, co-participants in a National Science Foundation-funded workshop that spanned a number of virtual sessions during the summer of 2021. A set of emergent collaborative formations within the workshop self-organized into paneled themes to interrogate and reflect on various questions concerning what “STS as critical pedagogy” might mean in different contexts. This essay mirrors those panels, with each panel group offering a short vignette about their collective reflections accompanied by questions and provocations for STS colleagues interested in exploring critical STS pedagogies as both research and practice.

Acknowledgements

We would like to acknowledge the contributors to this special collection, whose openness to experimentalism, creativity, and patience were critical to exploring how we might cultivate a collaborative formation as part of developing a special collection. We would also like to acknowledge the work of the ESTS Editorial Collective, and especially Clément Dréano and Tim Schütz in supporting the collection’s data elements in STS Infrastructures.

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Data Availability

Data published in this article can be accessed in STS Infrastructures at: <https://n2t.net/ark:/81416/p4j30v>.

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