CATALYST
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A Pedagogical Ecosystem: Building Connections in and Beyond the Classroom

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Abstract

This paper is a short reflection on the role that *Catalyst* articles and special sections played in shaping the ethos of the senior seminar on feminist science

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technologies studies that Shweta Krishnan taught at the Women's, Gender, and Sexuality Studies Program at George Washington University during fall 2023 and fall 2024. Together with six students who took the class in fall 2023, Krishnan examines the pedagogical ecosystem that emerged through the collaborative learning practices and the collective intellectual development that the *Catalyst* pieces made possible.

Keywords
pedagogy, critical feminist studies, collaboration

The senior seminar—Feminism, Gender, and Science—that I offered at George Washington University invited undergraduate seniors majoring or minoring in women's gender and sexuality studies to lean into feminist science technology studies and parse the blurry lines between human and nonhuman, nature and culture, man and machine.[1] In the process, I hoped that these students—already trained in intersectional feminist thought—would learn to question the entanglements between science, gender, race, caste, class, imperialism, and ableism. Discussing cyborgs and multispecies formations, design and infrastructures, networks and entanglements, we hoped to analyze emergent phenomena and examine the possibilities that a critical approach to science can hold for feminist worldmaking.

I taught this course in fall 2023 to eight students and in fall 2024 to ten students.[2]This article offers some of my learnings from both years with a special focus on three special sections—"Illness Narratives, Networked Subjects, and Intimate Publics" (Merid and Kneese 2018), "Crip Technoscience" (Fritsch et al. 2019), and "Global Fertility Chains and the Colonial Present of Assisted Reproductive Technologies" (Vertommen et al. 2022)—as well as independent articles from *Catalyst* that significantly shaped our collective pedagogical journey (for a list of the articles we used, see References). In this reflection piece, I am joined by six of my students from the fall 2023 class with contributions of their observations on classroom discussions and interactions. Together, we examine the pedagogical ecosystem we created by collaborating amongst ourselves and with the authors, whose theoretical and methodological offerings we read, debated, and played with in class.

Critical Reconfigurations

At the heart of our seminar were four thinkers—Donna Haraway, Sylvia Wynter, Banu Subramaniam, and Kim TallBear—whose works taught us to situate science within a field of power relations. Examining the figure of Man, overrepresented as Wynter might say at the heart of scientific knowledge production, was particularly

productive for our class. This line of thinking allowed us to enrich our intersectional lens—we asked who this schema represents and who it dehumanizes and marginalizes on the basis of gender, sexuality, race, caste, class, and ableism. Thinking so deeply about the figures central to knowledge production critically reconfigured our understanding of intersectionality. It allowed us to dig deeper and become more analytical in our discussions.

To illustrate the real-world impacts of imperialist science, I turned to twelve articles from *Catalyst.* I picked this journal because its articles not only offered intersectional, decolonizing critiques of scientific knowledge production but also provided new methods for collectively reimagining the world. Three special sections were our constant companions in this journey. First, "Illness Narratives, Networked Subjects, and Intimate Publics," edited by Beza Merid and Tamara Kneese in 2018, allowed us to think about the role of emergent medical technologies in reconfiguring our relationships with our bodies. Kirsten Ostherr's piece on data mining raised questions about big data—whose bodies were used in its production versus who benefits from it. We used Haraway's method of cat's cradle (string figurations) to trace the way patients' bodies become data points entangled with biocapitalist institutions, such as medical hospitals, insurance companies, pharmaceuticals, biotech companies, tech companies supporting medical apps, and so on. All of us brought up the examples of apps we were using on our cell phones to trace our bodily activities such as sleep cycles, our daily steps, monthly periods. Tracing these entanglements between ourselves, our data, and the companies that owned this data allowed us to think of potential sites for intervention, in order to ensure that patients/users retained full control of their data.

The 2019 special section on "Crip Technoscience," edited by Kelly Fritsch, Aimi Hamraie, Mara Mills, and David Serlin, generated powerful conversations on the crip body as an agentive, knowing, and generative body. Particularly, Mallory Kay Nelson, Ashley Shew, and Bethany Stevens's piece on "Transmobility" kindled discussions on disabled bodies as sites of joy, allowing us to think of the cyborg—in this case cripborg—as a figuration that allowed for human bodies to emerge through the joy of dependence on human and nonhuman bodies and objects. This conversation allowed us to critique the centrality of productivity, individualism, and independence in liberalist spaces, including the space of the liberal university. Thinking with cripborgs motivated students to reimagine campus infrastructures by decentralizing ableist designs. For example, during our discussions in fall 2024, we wondered what it might look like for buildings such as the library to replace all stairways with ramps, and for all texts and videos available digitally to have audio descriptions, larger font sizes, and closed captions. We also discussed how promoting dependency might lead to better collaborations and less competitive relations between students. In the end, we concluded that all bodies benefited from disabilities-centric thinking and that ableist frameworks produces collective

exhaustion. We also had an honest discussion about the limits of working with the dependent cripborg figuration within education systems shaped overtly by ideas of individual excellence and productivity, rather than by an ethos of collective learning and collaborative production.

A few class projects in fall 2024 emerged from the "Crip Technoscience" special section. Hana Kim drew on Eunjung Kim's piece on necro-activism in South Korea, to do an extended class presentation on the disabilities movement in South Korea and the long-drawn struggles to battle ableist infrastructures. Julianna Mucciolo's critical reading of the 2024 film *Out of My Mind* offered a deep critique of the spatial and temporal isolation that crip bodies are subject to in classrooms built for able bodies. Josh Abraham's final paper used the string figuration method to examine the entanglements between air pollution in the city of Washington DC, asthma in elementary school children living in polluted zones, and the role of absence and dropouts from school in shaping the school to prison pipeline.

Finally, the 2022 special section "Global Fertility Chains and the Colonial Present of Assisted Reproductive Technologies," edited by Sigrid Vertommen, Bronwyn Parry, and Michal Nahman, raised important questions about inequalities within the feminist movement—highlighting the imperialist power relations between queer parents or adoptive parents located in the West and adoptees or surrogates in other parts of the world. This special section challenged students' notion of solidarity, inviting them to think critically about uneven power relations amongst reproducing bodies across borders. We had generative conversations on the entanglement of Western feminist and queer movements with the empire and discussed the vast geographies of colonial injustice using transnational feminist frameworks. Deboleena Roy's piece on transplacental migrations engendered immense interest in the students because of its focus on chemical pollutants. Focusing on the molecular dimensions of harm allowed us to examine how structures can be violent even at the microscopic levels.

Together, these special sections assembled our thoughts on the eugenics logics of prominent institutions such as medicine, law and policy, education, border security, military and police, and so on; and the need to be critically reflective on our own embeddedness in systems of power. Several student projects in fall 2023, brought ideas from the *Catalyst* special sections together—Abigail Langmead parsed the disturbing frictions between disabilities and abortion; Rio Matsumoto examined the role of viability in shifting the politics of abortion; and Annabelle Manzo explored the eugenics logics of the technologies of the US-Mexico border; Mathena Jencka analyzed the racial underpinnings of visual technologies used in providing medical forensic evidence in court hearings on sexual assault; Beatriz Silva de Almeida Barros examined the entanglements between patriarchy and empire in international nuclear policies, and Raven McAuliffe examined the role of the empire in masking non-European histories and technologies of queerness.

Becoming with Each Other: Notes on Collective Learning from Students of Fall 2023

In the following section, students from the fall 2023 class share their thoughts on how their learning shaped by our discussions in class and the pieces in *Catalyst*.

Rio Matsumoto: *Catalyst* urges its readers to dismantle the lenses through which we view, understand, and interpret ideas of technology, science, and technoscience…We were encouraged to think deeply about concepts that we may not have been intricately aware of before. I picked apart new frameworks, many of which continue to stick with me, like Sylvia Wynter's critique of the overrepresentation of Man and Donna Haraway's concepts such as entanglements, partial knowledges. We stepped into the texts of the *Catalyst* to take on the writings; different opinions and debate them, embrace them, or embed them amongst our own.

Mathena Jencka: Many of our seminar discussions were provoked by questioning the basis of STS— whether that be through the biases in medical devices or the scientific aspect of the English language (which does not include an action verb for the vagina, in contrast to the penis, which is frequently associated with the term *penetrate*). Our discussion of STS vocabulary guided the class into an analysis of how such language fails to center the female body: The lack of an action verb situates the vagina as nameless and passive, which keeps the vagina at the margins and the penis at the center. Regardless of our previous exposures to science and technologies, approaching a scientific concept with an intersectional women's, gender, and sexuality studies lens catapulted discussions into a vast range of topics, which many of us had never before considered.

Raven McAuliffe: Our classroom pedagogy was built on candid exploration and prompted unexpected evolution in each of us. We used the *Catalyst* articles to adhere new meanings to old experiences, reshaping our histories and reimagining our futures. Seemingly mundane conversation topics, like the definition of a cyborg or whether red-orange was more red or orange, stirred up turbulent emotions in us because of the striking parallels to our struggles with defining our own identities. While using this space to address our growing concerns of the weaponization of technology against women, our university was simultaneously using technology to crack down on student protesters and their faculty support systems, making our conversations more of a survival tactic than a casual roundtable. Forged in fearless curiosity, this small feminist technoscience circle gave us room to become cyborgs of our own creation and escape the technological fears we faced outside the classroom.

Abigail Langmead: In order to engage in principled study and struggle on topics like feminism, theory, and technoscience, it was imperative that our class operate as a collective. Thinking and dreaming together was not only an act of scholarship, but an act of care in which we decolonized and expanded one another's minds. In true cyborgian nature, we found joy in the entanglements, and the class challenged us to undo them or even create more.

Annabelle Manzo: We utilized the pedagogical approaches that *Catalyst* encourages in order to think with and better understand feminist STS theory and encourage deep, collaborative, and critical discussion. When doing our individual readings of the text before class, a lot of us struggled to fully grasp and understand Donna Haraway's foundational theory of cyborg feminism. However, by acknowledging where we failed to grasp Haraway, we were able to arrive at honest and collaborative roundtable discussions, and discuss each what we felt we could grasp and could not.

To further understand cyborg feminism, we collectively analyzed and engaged with Jasmine Erdener's *Catalyst* piece "Human/Machine Fusions and the Future of the Cyborg" alongside Haraway's work. In our discussion we were able to put them into conversation with one another in order to better understand and conceptualize both transformative texts. Through this approach, we were able to step away from typical linear power dynamics and instead form an equal, committed, collaborative dynamic and environment. Instead of relying on our professor to summarize or synthesize the text for us, our instructor was engaged with us in our collective discussion, speculation, and collaborative thinking. We followed and built on each other's understandings and perspectives (or situated knowledges) of the texts, each of our thoughts informing another's. Moreover, we were able to use *Catalyst* readings such as Erdener's to create new and better understandings of foundational feminist STS works such as Haraway's. In this seminar, we truly thought with each other—pushing and pulling one another to think further stripping away labels of student vs. teacher and rather engaged with each other through collective roundtable discussions. It was through this collaborative pedagogy—informed by feminist technoscience theory itself—that we were able to dive deep into the topics of technoscience to create new meaning and understanding for ourselves.

Beatriz Silva de Almeida Barros: I think being in community with my classmates illustrated Donna Haraway's "god trick" through empathy, and somewhat paradoxically, like-mindedness. Our graduating class was eight people small, and it is generally expected that in a women's studies program, everyone will have similar opinions on a lot of things. That is to say, I didn't really expect to hear anything new (presuming infallibility in the comfort of my partial perspective: the god trick). However, the ways in which we challenged knowledge production enabled learning and empathy. A lot of our knowledge sharing happened through

storytelling—anecdotes about ourselves, our homes, our relationships, which do not exactly meet standards of scientific rigor—and became key to illustrating the concepts we studied. This humanized my classmates in a go-go-go environment that dehumanizes us all. It also humanized the literature, which I believe was the point of our STS journey—scientific papers are words written by people, not spotless knowledge by abstract entities of all-knowing.

Conclusions

These conversations on STS—our commitment to read these methods into our everyday lives—allowed us to continue to think with these ideas beyond class. Important aspects of feminist STS—the emphasis on connectedness, collaboration, coexistence, coevolution—has continued to inform us all. Additionally, in being an open-source journal, *Catalyst* allowed us to see what putting our critique of knowledge production into practice looks like. It aligned with the values we were trying to promote in class on the need to make knowledge production more egalitarian and accessible to all.

Overall, we all agreed that thinking with feminist STS enriched our overall intellectual contribution to critical feminist studies. The articles from *Catalyst* encouraged us to become critical of the imperial epistemologies that are at the heart of scientific knowledge production and imbued us with a framework of critique that we could take to all other fields of knowledge. While several of the students have been able to take these learnings to their graduate programs, law degrees, jobs in education, policy, and into their everyday lives, I was inspired by the discussions of these classes to introduce articles from *Catalyst*—particularly those on crip technoscience and illness narratives in introductory classes I have taught at the Women's, Gender, and Sexuality Studies Program at George Washington University. Once more, they led to motivated conversations both on the structures that limit us and on possibilities for rebuilding our material-semiotic worlds through intersectional thought. Students in the introductory class I taught in spring 2025, especially enjoyed the piece on data mining, especially because of the role that Big Tech has been playing in the rise of authoritarianism all over the world.

Although the introductory class focused on very broad areas of gender studies rather than on feminist STS, my students told me that they found the pieces on feminist STS extremely relevant at a time when they are aware of the inevitable entanglements between themselves, medical institutions, insurance companies, Big Pharma, and Big Tech. It is my belief that articles from journals like *Catalyst*—which offer a critical feminist studies perspective and embody this ethos—are excellent pedagogical tools in all feminist studies courses, beyond courses focused on science.

Note

[1] I served as Visiting Assistant Professor at the Women's, Gender, and Sexuality Studies Program at George Washington University between August 1, 2023, and May 31, 2025. Since July 2025, I teach at Boston University's Writing Program.
[2] The theme and topic for the senior seminar are not fixed. While I chose to focus on feminist science technology studies, the seminar has focused on other topics in the previous years. This article refers only to the syllabi I designed and taught in the two semesters mentioned here.

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