Restructuring the Specialized University

ABIGAIL DROGE

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ABSTRACT This essay examines the relationship between academic and industrial practices of specialization and suggests pedagogical paths forward to foster greater interdisciplinary engagement in higher education and the workplace. After considering the common structures of current interdisciplinary initiatives in academia and highlighting the challenges often presented by specialization when amplified in the corporate sphere, this essay imagines a future university of 2050 in which interdisciplinarity has become structurally integral and transformative. The essay closes by proposing concrete pedagogical actions that could provide sustained opportunities for students to cultivate connections between fields, both in college and in their subsequent careers.

KEYWORDS higher education, university structure, pedagogy, specialization, interdisciplinarity, corporate culture, industrial practice

This essay is motivated by an optimistic conviction that the solutions to our most pressing social problems begin with pedagogy. To foster an environment conducive to the finding of such solutions, we must first examine the continuum between academic and corporate systems; I argue that altering the specialized structures of our universities could, in turn, catalyze beneficial structural changes in the industries and institutions for which our college graduates work. Critiques of the neoliberal university tend to be unidirectional; they bemoan, rightfully so, an academia created in the corporate image. But there is little recognition that the reverse is true as well: corporations are created in *academia's* image, leading to an industrial landscape characterized by poor communication among specialized fields, coupled with superficial forms of interdisciplinarity that often fail to reach their highest potentials.[1] For two hundred years, the modern research university has embraced disciplinarity—the "last technology of the Enlightenment"—as its "organizing ethic," and has sought, through this "intellectual architecture," to produce in its students what Chad Wellmon describes as the "disciplinary self," the "subject of modern specialized science."[2] It should be unsurprising, then, that generations of

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such students have gone on to create, manage, and sustain institutions that succumb to what Gillian Tett diagnoses as "the silo effect," in which "people [are] trapped inside their little specialist departments, social groups, teams, or pockets of knowledge," and, consequently, "do stupid things."[3] Certainly, specialization has produced tangible and fundamental intellectual advancements and social benefits; "we cannot live without silos in the modern world."[4] But the specialized structures and mindsets rampant across corporate, government, and nonprofit institutions can also cause catastrophic harms, which for Tett range from financial crises to oil spills.[5] Fractured universities and a fractured workforce have been co-constitutive for centuries, reinforcing a feedback loop by which fragmentation becomes the unifying principle of both academia and industry. Academics thus cannot in good conscience leverage blanket criticisms of corporate practices without considering how our own pedagogical practices might perpetuate—or alter—them. In this essay, following the "three horizons" framework developed by Bill Sharpe,[6] I first describe the primary challenges that I see in the current specialized landscape of higher education. I then present an imagined university of 2050, in which interdisciplinary efforts have become structurally transformative, and I close with concrete suggestions for working toward this future.

The modern university is characterized by a persistent mismatch between the ethos of interdisciplinary initiatives, which seek to cross boundaries between fields, and the disciplinary structures in which they unfold, which seek to separate knowledge into discrete and independently managed units. As Caroline Levine makes clear, "Forms will often fail to impose their order when they run up against other forms that disrupt their logic and frustrate their organizing ends, producing aleatory and sometimes contradictory effects."[7] In this way, we can trace a deeply ironic life cycle for many interdisciplinary programs in which a new hybrid movement—say, the digital humanities—takes shape through the primary units of the specialized institution, itself *becoming* a discipline, which students can major or minor in, belong to the department of, and so forth. An alternative is that an interdisciplinary program floats adjacent to the university's disciplinary structure and constitutes itself instead as an extradepartmental campus "center." Both outcomes are admirable and undoubtedly achieve much, but it is crucial to recognize that in neither case is the specialized bureaucratic framework of the university—or the experiences of the majority of students—altered in the slightest. In the former case, we have merely added a new silo, and in the latter, an opt-in overlay, superimposed as an "extra" to disciplinary practice, with which already-motivated students

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and scholars engage at will. Nelson Maldonado-Torres makes clear the damage caused by such a status quo; in the case of ethnic studies programs in the 1960s, for example, "the liberal university subsumed these programs into its logic . . . and then, after defining them in such limited way, faulted them for allegedly being too essentialistic and provincial."[8] "What is missed" through these "containing measures" is the "fundamental contribution of Ethnic Studies" as "not merely a province in the Enlightened or Corporate University," but "rather, a decolonial force . . . that asks for and anticipates an-other kind of intellectual space."[9] Ronjaunee Chatterjee, Alicia Mireles Christoff, and Amy R. Wong register this concern in their recent call for "undisciplining Victorian studies"; drawing on the work of Christina Sharpe, they urge scholars in the field to engage meaningfully with critical race and ethnic studies in a "radically renovat[ing]" way, moving beyond "an additive or accumulative model that would leave the boundaries of Victorian studies intact."[10]

Attention to the corporate world shows us the continued consequences of an academic allegiance to disciplinarity. In their study of ethics initiatives in Silicon Valley companies, Jacob Metcalf, Emanuel Moss, and danah boyd find that

> without addressing the underlying logics to responsibly structure an organization to identify and guard against ethical failure, the mere implementation of ethical procedures may backfire. . . . Moreover, if ethics continues to be seen as something to implement rather than something to design organizations around, "doing ethics" may become a performance of procedure rather than an enactment of responsible values.[11]

Many interdisciplinary initiatives within universities, such as programs in data science, artificial intelligence, or the medical humanities, for example, are themselves often oriented around ethical questions. It is thus paramount that we understand how a failure to make such programs integral to our own academic structures and transformative of our own logics can reverberate in the corporate sphere. In the same way that corporate ethics programs often remain superficial rather than systemic, so too do interdisciplinary academic initiatives routinely fall prey to the gravitational pull of the disciplinary structures that they try to exceed, fortifying the current system rather than reforming it. As Metcalf, Moss, and boyd write, "building a solution in the same mold that was used to build the problem is itself a mode of failure."[12]

College distribution requirements and general education programs often suffer from a similar irony.[13] Here the dissonance lies between the intent of such efforts—to ground students in a broad base of knowledge that can contextualize and supplement their specializations—and their packaging, or what Gerald Graff describes as "an entity we love to romanticize—the *course*."[14] The standard practice of "configuring the curriculum as a set of courses taught by solo instructors not in

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communication with one another"[15] makes the experience of confronting a course catalog akin to dumping all the pieces of a jigsaw puzzle out on the table without being able to reference the picture on the front of the box. Many latent and powerful connections are lost as it becomes the burden of individual students and teachers to offset an atomistic system that provides little means for students to reflect on the through lines between classes, both within and across disciplines. The depth and pervasiveness of such loss becomes clear when we see how revelatory, celebrated, and unusual it is for advanced scholars to make connective claims between fields.[16] Consider, for instance, the compelling work of economist Carl Benedikt Frey, who, in his award-winning comparison of nineteenth-century British industrialism to current concerns around artificial intelligence and job security, writes that "the main challenge this book faces" is "to convince the reader that history is more than one damn fact after another," so deep are the disciplinary divides.[17] Could we imagine an educational system in which such insights—like the idea that history and economics can be mutually illuminating—would be not only the province of advanced researchers, but also part of the expected daily fabric of student experience?

The university of 2050 must provide sustained, structural opportunities for students to cultivate connections across fields, both in their own courses of study and in their engagements with others. Conceptually, there is little problem. "Disciplinarity was always interdisciplinary," Amanda Anderson and Joseph Valente write, and Wellmon makes clear that, from its nineteenth-century origins, the "disciplinary self" is exemplified by (among other traits) "a commitment to collaboration" and "an openness to exchange."[18] To be disciplined is also to "participate in something that exceed[s] the individual," and to be constantly aware of oneself as part of "a community of researchers . . . contributing to a human knowledge project brick by brick."[19] The key for us today lies in recognizing the slippage between academic *disciplines* as conceptual frameworks—easily able to synergize—and academic *departments* as the bureaucratic frameworks that govern how students access—and often cannot access—those disciplines in practice. Any efforts to alter the extant system, therefore, must be responsive to the perennial distance between big-picture intentions of university administrations and day-to-day material realities of students' scholastic lives, constrained as they are by the limitations of course schedules, prerequisites, enrollment processes, and financial concerns. First and foremost, we must think structurally, considering new forms for interdisciplinary engagement that can augment our specialized educational system with constant attention to students' experiences across the economic spectrum.

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The graduating college class of 2050 must be well educated in two related and complementary modes, which I will call *collaborative interdisciplinarity* and *civic interdisciplinarity*. By collaborative interdisciplinarity, I mean a constant impulse toward dialogue with those from different educational backgrounds, a genuine curiosity in the work of others coupled with a knack for asking cogent and insightful questions, and the ability to communicate one's own work openly, effectively, and without defensiveness to nonspecialists. This vision is not unusual; nor is it at odds with commitments to disciplinarity. Jonathan Kramnick, for example, puts it this way: "The best way to be interdisciplinary is to inhabit one's discipline fully."[20] Such existing relationships between specialized scholars and practitioners across fields are already highly productive and generative, yet in the current academic ecosystem these exchanges are often reserved for those who have already achieved a level of prestige or seniority. Interdisciplinarity in this sense is what one can do only *after* having mastered a discipline; indeed, some of the most elite spaces of the university are those centers dedicated to interdisciplinary collaboration among advanced scholars who have either received personal invitations or undergone rigorously competitive application processes to be there. With barriers to entry high, the result is that many often encounter such opportunities only later in their careers, or not at all. In order to realize the full potential of collaborative interdisciplinarity, it would behoove us to incorporate opportunities for such work throughout all stages of a student's educational trajectory, from freshman to senior year.

Nevertheless, it is important that collaborative interdisciplinarity not stand alone as the solution to institutional siloing. Surely it is good for specialists to speak to and work with each other more often, and much could be attained by doing so. But relying only on collaboration preserves—indeed, is predicated upon—both the theoretical and the material distances between fields and thus runs the risk of easily relapsing into segmentation, especially because, as we have established, spaces for collaboration often do not structurally alter a specialized educational system. The corporate world, which many of our students soon join, magnifies the challenges effected by this logic. Consider computer scientist Emma Pierson's warning that it is "insufficient" to "allow computer scientists to do what we're best at—writing code—and have other people regulate our products"; rather, coders themselves must "be able to act ethically even when no one's looking over their shoulders."[21] To extend Metcalf, Moss, and boyd's argument as well, we might consider the differences between a corporate model in which a single Silicon Valley ethicist attempts to collaborate with colleagues across different teams and departments (extremely challenging and often unsuccessful), and a model in which *every employee* has received an undergraduate education that included robust attention to tech ethics.

To this end, the university must also cultivate what I call *civic interdisciplinarity*. This is the grounding, reflexive, contextual knowledge that would allow stu-

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dents to apply their specialized expertise in the workplace in a way that is socially and ethically conscious. Students fluent in civic interdisciplinarity could make decisions while bringing to bear knowledge from a range of fields. They could also understand their own actions, and the possible consequences of these actions, as taking part in larger temporal and spatial frameworks of social relationships. The potential impact of this kind of civic interdisciplinarity becomes clear if we consider the following scenarios. Imagine how the technology industry might change if every software developer had a strong knowledge of the socioeconomic consequences of the Industrial Revolution and could think through the possible social impacts of new technologies with reference to historical and ongoing inequalities. Imagine how the energy and manufacturing industries might change if every CEO were conversant in the environmental humanities. And imagine how the banking industry—and indeed financial law itself—might change if every loan officer, tax attorney, and economic policymaker had a robust understanding of the history of the racial wealth gap.[22] These should not be outlandish examples; they are pedagogically achievable, or at least attemptable, in our college classrooms. While there certainly are existing members of the workforce who would fit these descriptions already, they are few and far between—those who took the initiative to seek out intellectual connections lying latent in specialized educational systems. The key is to make such workers the rule rather than the exception.

To realize a university that graduates students more adept at both civic and collaborative interdisciplinarity, I propose two immediate actions. These changes will only be fully effective if made structurally throughout the university on the administrative level, yet individual students, faculty, and departments can still do much to pilot initiatives that, in time, can foster a groundswell of altered cultural expectations in the academy. Indeed, many of the most promising grassroots movements have been motivated by students themselves. Rethinking Economics, "an international network of students, academics and professionals building a better economics in society and the classroom," is a prime example; in the wake of the 2008 financial crisis, students have increasingly come together to advocate for an "economics education that is pluralist, realistic, diverse, and decolonised," welcoming insights and methods from across fields and communities.[23] Such movements and perspectives continue a long lineage of student efforts to address the effects of siloing. In my own research, for example, I study the ways that students on the cusp of the specialization boom at a late nineteenth-century science college formed extracurricular communities in order to counteract the disjointed nature of academic life.[24]

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The first solution is to require what is currently optional. Such a step would transform existing interdisciplinary work on campuses, ranging from courses to extracurricular projects, from work that happens on an opt-in basis to a systemic and transformative part of *every* student's education. Pierson, for example, in her call for "broader training for computer science students" and "a more socially focused curriculum" points out that many undergraduate programs "do not require students to take a course on ethical and social issues in computer science (although some offer optional courses)."[25] Changing departmental culture, across majors, to one of mandated engagement with other disciplines, and modeling for students how other specializations are integrally connected to their own, would go far toward a goal of civic interdisciplinarity. Though there are certainly times when curricular requirements do not produce their desired results, imagine the potential impact if, in order to graduate, every college student had to participate in at least one of the collaborative cross-disciplinary projects that already abound on campuses. Such projects usually occur in extradepartmental spaces, such as humanities centers or extracurricular clubs, and, as such, they can be hard for students to encounter in the daily rhythms of coursework and to integrate with their majors. For the lucky students who do find their way, however, participation can be transformative, providing a venue outside of a class setting in which to apply expertise from their own fields, while engaging with the ideas of others.[26] Making these projects more integral and central to the undergraduate experience by requiring student participation in such an environment for course credit would be highly meaningful, especially for humanities students who often do not otherwise have exposure to sustained collaborative work.[27] Interdisciplinary spaces could also become self-reflective sites for imagining new interdisciplinary structures and practices.

The second solution is to teach disciplinary and institutional history. It should not be possible for students to leave an institution without a firm understanding of why their education was structured in the way that it was. (I would hazard a guess that currently the vast majority of college students graduate without such an awareness.) All first-year students should be required to study both the history of the college as a concept and the history of their own college as a particular institution situated in a local environment.[28] Further, each major should require an introductory course that both outlines the history of the discipline's methods and theories (such courses often already exist) *and* (what is less common) focuses attention on the institutional, departmental, and curricular structures and material conditions that have governed the way students have accessed and participated in that discipline, both at large and in the specific context of that college.[29] Courses could also help students to conceptualize the lineages of interdisciplinary spaces as well; critically mapping the links that Jess Wilton traces between "the collective

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spaces of the modernist design workshop and literary salon" and the "institutional modernism" of campus "maker spaces," for example, could bring to light the "transformative potential" of such spaces and provide needed opportunities for historically aware students "to ask how and why we make."[30]

The combined benefits of such a curriculum, if systemically implemented, would be immense. From the start of their college experience, students could, in the words of Heather Steffen, "take a step towards viewing the university as an institution built up by a series of choices made by people in particular historical, political, economic, and cultural contexts"[31]—choices to which students themselves can contribute, rather than seeing academia as a haphazard map for which they lack the key. Cultivating such a meta-awareness about the received structures of their own educations would not only make students better able to navigate a complex intellectual ecosystem but also make them better equipped to effect structural change both within their own colleges and in the future organizations for which they work. As Steffen writes, "Undergraduate research in critical university studies provokes students' civic imagination."[32] Asking students knowledgeable in such history about the future possibilities that *they* see for college education, and partnering with them to do justice to their proposals, is the best way forward. Only then can the project of institutional revitalization, particularly in the wake of the COVID-19 pandemic, be truly responsive to the intellectual communities we build. Let us hope that, when they read our chapter in their institutional histories, the class of 2050 will find our efforts worthy of them.

ABIGAIL DROGE is a visiting instructor in the Cornerstone Integrated Liberal Arts program at Purdue University. Before coming to Purdue, she was an ACLS Emerging Voices Fellow in the Department of English at Emory University and worked as a postdoctoral scholar at the University of California, Santa Barbara, where she directed the Curriculum Lab for the Mellon-funded digital and public humanities project WhatEvery1Says: The Humanities in Public Discourse. She received her PhD from the Stanford University Department of English in 2018. Her work focuses on the history of reading in nineteenth-century Britain and has appeared in *Victorian Studies*, the *Victorian Periodicals Review*, and the *Journal of Literature and Science*.

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Notes

1. I write this piece from an American context, and my claims pertain mainly to higher education in the United States. For a fascinating discussion of related questions in a Chilean context, see Thayer, "Non-modern Crisis." Of particular interest is Thayer's evaluation of "the universality of the university"—the extent to which the university is, or is not, "the origin and source of modern society" ("Non-modern Crisis," 63).
2. Wellmon, *Organizing Enlightenment*, 7, 6, 7, 9, 237.
3. Tett, *Silo Effect*, 6, 21.
4. Tett, *Silo Effect*, 227.
5. Tett, *Silo Effect*, 20–23.
6. The three horizons framework was the organizing principle for the "Global Higher Education in 2050" conference at the University of California, Santa Barbara, in March 2020, at which this article originated. Materials from "H3Uni: Towards a University for the Third Horizon" were central to our work throughout.
7. Levine, *Forms*, 7.
8. Maldonado-Torres, "Decolonial Turn," 4.
9. Maldonado-Torres, "Decolonial Turn," 4.
10. Chatterjee, Christoff, and Wong, "Introduction," 371.
11. Metcalf, Moss, and boyd, "Owning Ethics," 468.
12. Metcalf, Moss, and boyd, "Owning Ethics," 466.
13. I am grateful to Alanna Bartolini for many generative conversations about general education.
14. Graff, *Professing Literature*, ix.
15. Graff, *Professing Literature*, ix.
16. The National Science Foundation, for example, places a strong emphasis and prestige on "convergence research," which approaches "complex problems focusing on societal needs" through "deep integration across disciplines" (National Science Foundation, "Convergence Research at NSF"). I am grateful to Andrea Stith for bringing this to my attention.
17. Frey, *Technology Trap*, 23.
18. Anderson and Valente, "Introduction," 4; Wellmon, *Organizing Enlightenment*, 244.
19. Wellmon, *Organizing Enlightenment*, 251, 244.
20. Kramnick, "Interdisciplinary Fallacy," 67.
21. Pierson, "Hey, Computer Scientists!"
22. As described, for example, in Baradaran, *The Color of Money*.
23. Rethinking Economics, "About Us." The group has a special interest in curricular reform and has created its own textbook: Fischer et al., *Rethinking Economics: An Introduction to Pluralist Economics*. Deeply inspiring as well are the efforts of Arts and Humanities in the 21st Century Workplace, directed by Christine Henseler of Union College, which emphasizes the perspectives of the millennial generation (www.ah21cw.com). See also Reflection Point (previously Books@Work), directed by Ann Kowal Smith, which encourages employees to engage and communicate with each other through literature (www.reflectionpoint.org).
24. See Droge, "Reading George Eliot."

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25. Pierson, "Hey, Computer Scientists!"
26. I witnessed this firsthand through my work for the Mellon-funded digital and public humanities project, WhatEvery1Says: The Humanities in Public Discourse. This was a multiyear and multi-institutional project, including California State University, Northridge, and the University of Miami. WE1S afforded students the opportunity to work across fields in a highly collaborative environment; at any given time, about thirty to forty researchers were participating from all levels of the academy, from undergraduates to senior faculty. I saw this experience have tangible, beneficial impacts on the undergraduates with whom I worked.
27. Such efforts, however, would have to take care not to remove paid opportunities for student work. They would also need to adjust existing requirements so as not to overburden students. Grant structures for such projects could place emphasis on roles for undergraduate participation.
28. Such efforts are increasing, especially in response to recognizing the role of slavery in higher education institutions. The Anti-Racist Pedagogy group in the Emory University Department of English, for example, has been a helpful interlocutor in thinking through these questions.
29. Interestingly, Wellmon demonstrates that such an understanding was always central to the conceptualization of disciplines: "a discipline was most basically the history of how a discipline had related to itself over time" (*Organizing Enlightenment*, 249). However, students often lack this historical meta-awareness today.
30. Wilton, "New Modernism," para. 1, 21–25.
31. Steffen, "Inventing Our University," 21.
32. Steffen, "Inventing Our University," 23. Steffen also notes that "a one-term course does not afford time for extended analyses and the development of informed strategies to reclaim the university. But in collaborative research projects, we can find the intellectual space, resources, and dedicated time to move from questioning to analysis, critique, and collective action" (22). Combining curricular structures with more flexible and sustained research projects at scale could thus be the way forward. Imagine, for example, how the university would change if *every student* undertook collaborative critical university research in the way that Steffen describes and was then given opportunities "to connect . . . research and writing to collective action" in response to problems facing the campus community (23–25).

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