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# Cracks in the Success Narrative: Rethinking Failure in Design Research through a Retrospective Trioethnography

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What can design researchers learn from our own and each other's failures? We explore "failure" expansively—turning away from tidy success narratives toward messy unfoldings and reflexive discomfort—through retrospective trioethnography. Our findings reflect on failures we identified in six past design research projects: issues of relational labor of deployment, mismatched designer/participant imaginaries, burden of participation, and invisibility of researcher labor. Our discussion contributes to broader reflections on shifting design research practice: (a) methodological considerations inviting others to engage failures through retrospective trioethnography, (b) letting go as a mode of research care, (c) possibilities for more candid research reporting, and (d) how centering failure may contribute to design justice by providing a technique for attending to harm and healing in design research practices. Throughout, we call for challenging success narratives in design research, and underscore the need for systemic changes in design research practice.

CCS Concepts: • **Human-centered computing** → **Interaction design process and methods**;

Additional Key Words and Phrases: Failure, research-through-design, trioethnography, autoethnography, reflection

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## 1 INTRODUCTION

Most outward-facing documentation of design research emphasizes linearity—charting what went well and suggesting how one might continue on more fruitfully. In a feminist turn to the margins of that frame, we ask, what can design researchers learn from attending to "failures" in design research? Design practice is no stranger to learning from failure; design iterations often reveal flaws or shortcomings to improve upon in subsequent iterations. Yet, these iterations are often folded into a longer narrative arc culminating in a "successful" design.

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We call for challenging success narratives in design research, and illustrate how attending to failure may allow researchers to go beyond success/failure binaries toward more nuanced, rigorous accounts. We do this by contributing reflections on our own “failures” in prior design research projects that we have previously published as “successful.” In doing so, we challenge and rework both notions of “success” vs. “failure” and the narrative arcs of our prior design projects.<sup>1</sup> In engaging “failure,” we contend with a concept steeped in functionalist engineering evaluation that does not connect well to design research and designerly modes of knowing. We resist reductive functionalist evaluations of success vs. failure and instead leverage the notion of “failure” as a point of departure: away from tidy narratives of successes and failures toward messy unfoldings, reflexive discomfort, and nuance. The loosely defined notion of “failure” operated for us as a prompt for reflection, a feminist tactic of examining what gets left out of prevalent narratives. We brought to the center of our discussion what had not fit into prior stories we told about our design projects: lingering feelings of discomfort, frustration, guilt, or shame. Bringing these feelings into closer, more conscious examination helps question, critique, and rework underlying assumptions of design research practice and re-orient toward more just practices.

Our desire for reflexivity was met in the method of retrospective trioethnography—a method building on interpretivist traditions that “turn[s] the inquiry lens on ourselves” (p. 1) [93] as a site to reconstruct perception and meaning. We use retrospective trioethnography to critically reflect on our own design research projects as a means to investigate failures in our designs, design processes, and design research approaches. In accordance with the aims and techniques of duo- and trioethnography, our process included asynchronous and synchronous dialogues that delved into each of our individual experiences and juxtaposed them to highlight differences. This allowed our first-hand experiences to become the starting point for new insights, treating our subjectivity and emotions as central to the research.

Our findings expand the notion of “failure” beyond evaluations (functionalist or not) of design artifacts to considerations of surrounding lifeworlds. We find issues with the impulse to deploy the technical artifacts we build, surfacing how typical narratives of deployment take for granted particular forms of labor involved. We find mismatches in sociotechnical imaginaries between designers and participants, where we as designers sought to critique deeply ingrained imaginaries of technological innovation and progress. We find problems with the burden of participation, recognizing instances of unexpected participant discomfort. Finally, we call out the invisibility of researcher labor, and the sometimes overwhelming influence of external factors. Overall, these reflections engage existing hard-hitting critiques of design research practice, connections we sketch throughout the article to outline how our insights point to the need for systemic changes in research culture. Situating these critiques in our own experiences adds richness and nuance, illustrating how these issues may subtly come into play in specific design research projects and beginning to hint at alternative possibilities.

Our discussion explores alternative possibilities, offerings that may assist in doing design research differently: (a) detailed methodological considerations to help others engage using retrospective trioethnography to reflect on their own design research practices; (b) reflections on letting go as a mode of research care, including both improvised instances of mitigating harm in the moment and strategic moves toward reworking methods and modes of engagement; (c) calls to move away from the “heroic designer” narrative, surfacing thorny issues of extractive storytelling and recognition of labor; (d) discussions on how centering failure may contribute to design

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<sup>1</sup>This article does not discount our prior publications on ‘successful’ aspects of these projects. Rather, the self-critical reflexivity of this paper enriches and deepens prior accounts. Most importantly, our careful examination of our own ‘failures’ in no way implicates our co-authors on prior publications.

justice—attending to harm and healing in our practices and continually seeking ways to mitigate the exploitative tendencies of design research [5, 7, 18]—and how first-person methods such as trioethnography offer an approach for interrogating our own work.

## 2 BACKGROUND

Here we outline related work on designerly approaches to reflection, critique, and failure. Our methods section, below, details how we engage retrospective trioethnography.

### 2.1 Reflection, Critique, and Seeking Justice

We draw from reflective design’s capacity to question the limits of design practice itself—not only users, but also designers. Two key principles of reflective design as put forth by Sengers et al. are that designers should use reflection to “uncover and alter the limitations of design practice” (p. 7) and “re-understand their own role in the technology design process” (p. 7) [95]. They define reflection as, “bringing unconscious aspects of experience to conscious awareness, thereby making them available for conscious choice” (p. 2) [95]. As designers, we draw from reflective design by engaging “failure” in design research as a prompt for us to reflect on and re-understand the specific situated roles we played in our past projects. Eschewing a specific definition of “failure” invites us to explore vague yet sticky feelings of failure, surfacing areas of our own design practice for increased conscious scrutiny, articulation, and choice. Both pragmatic and emotional ways of knowing work together in our reflections.

Many efforts expand approaches to designer reflection and reflexivity throughout design processes, such as during field work [70, 103] or for design futuring [71]. Especially pertinent to our approach, feminist HCI leverages critical reflection to “analyze designs and design processes in order to expose their unintended consequences” (p. 1308) [10]. Haraway explains how all human knowledge comes from a situated human perspective [50]; this suggests designer reflexivity can lead to more rigorous knowledge production. Critical technical practice calls for “one foot planted in the craft work of design and the other foot planted in the reflexive work of critique” [2]. Our first-person method of retrospective trioethnography (detailed in the next section) leverages this reflexivity to provide rigorous, richly contextualized accounts of design practice. Wong et al. bring an infrastructural turn to speculative design, expanding beyond the technological artifact to critical reflective consideration of the surrounding lifeworlds [106]. Drawing from these approaches, we contribute a unique reflective focus on “failure” not only in design artifacts or technical processes but also and especially in the social lifeworlds and design processes surrounding our work.

By engaging in critical reflection, as proposed by these calls, recent works critique specific aspects of design research practice. Balaam et al. critique how experience-centered design does not typically report on the emotion work done by design researchers and how this limits effective training and knowledge sharing in design research [8]. Examining not only at the emotion work conducted by researchers but also the emotional burden on participants, Hirsch raises ethical concerns stemming from similarities between qualitative interviews and therapy for vulnerable participants, calling for trauma-informed research practices [55]. Furthermore, other works highlight and critique the solutionist bias of HCI by instead exploring when designing technology may *not* be appropriate [11], offering an account of inaction as a design decision [56] or proposing inquiry and commemoration as alternative design goals [28]. Our work adds to these critiques of design research practice by offering vulnerable reflections of our own instances of failure to make legible the beneficial insights that can stem from reflecting and reporting on failure in design research.

Underlying many such critiques of design research practice are morals of justice in research and design. Research justice emphasizes self-determination for marginalized people and communities, in part by turning critical attention to power imbalances between researchers and participants

[5, 7, 92]. Focusing on justice in the design process, design justice critically reworks design processes to center those marginalized by design along axes of systemic oppression such as white supremacy, ableism, heteropatriarchy, and so on [18, 20]. Combining research justice and design justice, recent work calls for more just practices in HCI. Asad offers *prefigurative design* as a framework for more just research practices [5]. Asad et al. call on HCI to recognize how standard academic research practices can reify systemic oppression and offer alternative strategies for research justice [7]. Dombrowski et al. outline strategies for social justice-oriented interaction design [30]. Harrington et al. call for more equitable participatory design engagements in community-based collaborative design [52]. Liboiron calls for care and solidarity in interventionist research [75]. Attending to these calls, we offer methodological reflections on using retrospective trioethnography as a technique for engaging difficult ethical and methodological questions around design justice.

## 2.2 Failure in Design Research and Beyond

Engaging failure in design research has ethical and epistemological implications. What counts as failure or success in design research? If research success is related to knowledge production, what counts as knowledge production in design research? In this article, we only dip our toes into these difficult questions, but we ask these questions of ourselves and our readers to hint at the stakes of engaging failure.

Notions of failure in design research partially stem from functionalist engineering evaluation. A technical system may succeed or fail to achieve specific functional objectives in engineering evaluation, but this notion of failure does not neatly transfer to evaluating designs with human interaction. Design practice often structures itself around cycles of iteration, analyzing failures at each cycle to iteratively improve [96]. Human-centered design consultancy IDEO advises iteration and “fail early and often” [63]. As usually adopted by design practice, failures get folded into cycles of iterative improvement leading to a successful design, reifying typical success narratives.

Design researchers have begun to explore failures that do not directly iterate into “success” in a single project’s story arc. Gaver argues that one-way design research produces knowledge is by describing “what works” about specific design artifacts, synthesizing these characteristics into key suggestions or considerations for future design research [43]. Learning from design failure can also contribute to this mode of knowledge production, as failings of prior iterations inform future iterations or future directions potentially by other researchers working on other projects. In this vein, Gaver et al. reflect on the failure of Home Health Monitor, yielding insight on how to design with data for open-ended interpretation [44]. Their analysis of this design’s failures, and Gaver’s agenda-setting design research more broadly (e.g., [41–43, 46]), help shift design evaluation beyond functionalist engineering standards of task completion or efficiency. The analysis of the Home Health Monitor’s failures centers how participants interacted with the design artifact, locating failure in the design artifact itself [44]. In another example, Torres et al. propose strategies for mitigating and productively working through feelings of failure around laser cut objects [105]. Heinzel et al. exhibited failed e-textiles and show how reflecting on failures not only helps others learn from those mistakes but can also stem new directions for the designers themselves [53]. Additionally, it is fairly common in design publications to report on flaws of selected prior design iterations to help explain key design decisions for the final “successful” design. In a sense, reflecting on failure is already integral to much design research practice. Our work builds on and expands this practice of reflecting on failure in design works.

We expand this approach of reflecting on failure in design research in two ways. First, we add nuance to the notion of success vs. failure. Although Gaver et al. describe “an obvious, incontrovertible, and multidimensional flop” (p. 2222) [44], we reflect on projects that entangled aspects of

both success and failure, as many projects do. In many ways the prior projects we reflect on were successful, as indicated by resultant design insights and publications, yet we still choose to turn self-critical attention to where these projects held lingering feelings of unease or aspects of failure. Second, we expand consideration beyond the design artifact and participants' interactions with it to additionally include considerations of multiple stakeholders, participant labor, researcher labor, and so on. Our reflections tease out aspects of success and failure in prior projects and then move away from this binary toward more situated recounting of our process and broader accountability in terms of design justice commitments.

*Trouble* is a related term inviting design researchers to challenge the status quo. For example, Haraway's call to "stay with the trouble" [51] has been taken up in design research. Søndergaard and Hansen engage this by staying with the trouble of digital personal assistants [101] and Søndergaard by *troubling design* for women's health [100]. In 2019, the Design Trouble symposium challenged hegemonic notions of successful design by positioning non-teleological notions of the design (including failure) at the center of discussions between design practitioners, thinkers and researchers in landscape architecture, media art, design, anthropology and more [3]. By focusing on non-teleological aspects of design—moving away from design narratives that exclusively focus on the purpose, end, goal, or function—the symposium allowed participants to emphasize process which includes moments of reflection, temporary successes and points of failures. In a sense, our retrospective trioethnography on failures of our past projects serves to trouble the tidy success narratives of our prior publications.

Beyond design research, science and technology studies (STS) finds great analytic utility in studying moments of *breakdown* for revealing what might otherwise be left unexamined, particularly as infrastructure "becomes visible upon breakdown" (p. 5) [102]. STS and HCI scholar Jackson draws from phenomenology, Vygotskian activity theory, and the concept of invisible work to argue it is "in moments of breakdown that we learn to see and engage our technologies in new and sometimes surprising ways" (p. 230) that resist and rework dominant narratives of technological innovation and open up possibilities for building anew [65]. Jackson argues for an ontological shift toward centering maintenance and repair within the design and study of technological artifacts [65]. Yet, in this article we choose to linger on failures or breakdowns in our own design research practices to leverage their analytic utility for revealing what prior success narratives of our work left uninterrogated.

Moving away from success makes way for critiques of normative notions of advancement too often steeped in hegemony. Shorey et al., for example, call for a departure from monolithic narratives of progress toward singular goals to value friction and breakdowns [97]. Bell et al.'s [12] retrospective autoethnography describes how Black and Brown scholars in academia are often *expected* to fail, and invites marginalized researchers to embrace failure as part of the radical decolonial dreaming of the "New University." By making space to think more deeply, care for students, and fight for social justice, they argue, "failure allows for a retreat to think anew about what went wrong" and for being "more deliberate in pursuing social justice" (p. 8) [12]. In *The Queer Art of Failure*, Halberstam argues "success in a heteronormative, capitalist society equates too easily to specific forms of reproductive maturity combined with wealth accumulation" (p. 2). As an alternative, "under certain circumstances failing, losing, forgetting, unmaking, undoing, unbecoming, not knowing may in fact offer more creative, more cooperative, more surprising ways of being in the world" (p. 2, 3) [48]. As design research and third wave HCI move away from an uncritical embrace of capitalist production toward more cooperative ways of being in the world, a focus on failure helps surface and critically re-evaluate underlying values at work in design research practice. We take up these calls to challenge success narratives and embrace failure, specifically within our own domain of design research.

### 3 METHOD

We conducted a retrospective trioethnography to investigate failures in design research, using our own design research projects as sites for critical reflection. Trioethnography, like other first-person research methods such as autoethnography and autobiographical design, positions the researchers as research participants, allowing their first-hand experiences to become the starting point for new learnings. Historically, autoethnography was developed to “acknowledge and accommodate subjectivity, emotionality, and the researcher’s influence on research, rather than hiding from these matters or assuming they don’t exist” [34]. Autoethnographers, by moving away from an assumed neutral presence in the research process, reposition themselves, their body, their life, their positionality, into how knowledge is produced [12]. Building both on ethnography and autobiography, autoethnographers use writing as a central tool, aiming to “produce aesthetic and evocative thick descriptions of personal and interpersonal experience” (p. 277) [34] analyzed through their cultural and social context.

Within HCI, first-person research methods, including autoethnography and autobiographical design, have been championed as ways to gain in depth, rich, and evocative accounts of how people live with technologies [21, 40, 80–82]. This is particularly notable as HCI’s research agendas move toward more intimate, embodied, every day, and long-term relations with technologies, contexts which, by definition, might benefit from reports of personal lived experiences. While autobiographical design projects have centered the insights gained from designing, building and living with a new artifact or technology (e.g., [21, 27, 45, 54, 82]), autoethnographies in HCI have focused both on personal experiences of living with technology (e.g., [15, 66, 78, 80, 85]) as well as critical reflections on personal experiences in industry and academia (e.g., [14, 67]). Finally, while not necessarily using the terms autobiographical design or autoethnography, we also see a growing corpus of works in HCI that use first person reflexive accounts to discuss research and design processes (e.g., [4, 8, 23, 28, 91]), as mentioned in the previous sections.

#### 3.1 Duoethnography and Trioethnography

In duoethnography and trioethnography, the emphasis is on the dialogical relationship between the lived experiences of the researchers [94], a key distinction from other first-person methods. By juxtaposing multiple voices, the researchers can reflect on the similarities and differences between their experiences, opening doors for learning [94]. Researchers have used duoethnographies to inquire into personal aspects of life such as sexual orientation, race, friendship, and feminism (as exemplified in the 2015 special issue of the *International Review of Qualitative Research* [93]), often sharing vulnerable experiences where they have been hurt or where they might have hurt others. This suggests that it is a well-suited methodological approach for us to explore the uncomfortable, sticky and sometimes shameful personal experiences of failure in design. Furthermore, Norris and Sawyer, who coined the term duoethnography, state that in duoethnography “the intent [is] not to profess but rather to learn and change as the result of the conversation” (p. 2) [93]. This resonates strongly with our process, in which we not only analyzed our own experiences to share back with the HCI community, but we also genuinely learned from our exchanges, or as Huckaby and Weinburgh say “we [came] to know the other and ourselves through the space between our experiences” (p. 62) [61]. Duoethnography and trioethnography are frequently retrospective, including reflections reaching back into childhood (e.g., [61, 62]). Revisiting the past enables the dialogic juxtaposition of different life experiences when the researchers were apart. Employing retrospective trioethnography enabled us to reflect on our failures across several past design research projects spanning several years. The process allowed us to share and learn from these vulnerable, uncomfortable experiences that were glossed over in publications or other project documentation.

### 3.2 Our Trioethnographic Process

We came together around a shared interest in the generative potential of failure in design research. To start the project, Noura reached out to Audrey for an initial conversation. Both of us engage in critically oriented design research as a central methodology to our work and share an interest in examining the assumptions and potentials of data in everyday life. While Noura focuses on data and the body, Audrey's interest centers around data in home settings. Together, we decided to reach out to Sarah who is also a design researcher critically working with data, but at the scale of infrastructures. This combination of shared methodology, variations on data, and familiarity with each other and each other's work seemed like good starting points for a collaboration. In terms of exploring failure, Noura wanted to generate something insightful from a 2-year long project that failed to deploy at the end. Audrey welcomed the idea of pausing to look back in order to look forward to future projects. By examining repeating patterns of things not working in her practice, she was interested in finding ways to do things differently. Sarah was in the mid of moving institutions and saw an opportunity to reflect on the body of work that she had done thus far. Creating a generous space to examine instances of failure felt like a way forward in terms of outlining a more considered and responsible research practice.

After a few meetings and email exchanges to discuss the goal of the project and to agree on our process, we each selected two design research projects to discuss with the group. By leaving the definition of failure open, we were able to choose projects that had left us with lingering feelings of stickiness, shame, or guilt. We also could look back at projects in which we had left out details to fit in the success narratives in our previous publications. Before we turn to a description of our method, we share our own positionality as a way to ground our work, an important part of any trioethnography. We are three white, cisgender women assistant professors based in the United States. Noura was trained in information science and is now in a communication department, Sarah was trained in human centered design is now in an HCI department, and Audrey was trained in design and is now in an art and design school, all at research universities. From these different backgrounds, we have each developed careers in critically oriented design research in the broad field of design and HCI.

Our reflective process went as follows. We wrote individual narratives for each project (between 1,300 and 2,100 words each), focusing on points of failure in our past work. We used past emails, notebooks, project documentation, photos, and previous publications (and their drafts) to jog our memory when writing, a state-of-the-art practice in duoethnography [94]. We knew we would share these narratives only between us, a generous and caring audience, encouraging us to be open, vulnerable, and honest, taking hints from Devendorf et al.'s work on vulnerable design memoirs [28]. We shared them via Google doc to start our dialogue. Garcia and Cifor emphasize the importance of "practicing engaged and interactive dialogue as a primary approach for the shared probing of a theme, activity, event, or problem" (p. 6) [40]; we planned for two modes of dialogue. First, we asynchronously commented on each other's narratives with questions, requests for clarification, and comments emphasizing a point, or sharing a similar anecdote. Second, for three weeks in a row, we met twice a week to interview each other, using a different project as a starting point for each session of approximately 90 minutes. We recorded each Zoom session and downloaded the transcripts. In each session, we first checked in with each other about life in general, continuing to build a generous, open and welcoming space for discussion. Then, one of us would talk through one of our narratives, while the other two were listening, taking notes. We then discussed the failures brought up in that narrative. We often started by asking questions or offering statements of meaning (inspired by Lerman's critical response process [19]), but often moved into three-way discussions around issues we all encountered in our own projects. Orienting questions during those discussions included the following:



- What are challenges or issues in the project and to what extent, how, in what ways, were they addressed, mitigated, solved, or not?
- How does the researcher/participant feel about this aspect, stage, artifact, and so on, and why—offering particular attunement to frustration, surprise, “not working,” “failure”?
- If there is a sense of failure, who is the design or process failing, in what ways, how, to what extent? What are the stakes of failure, and to whom?
- Describe the experience of reaching failure. Was it a particular moment? Or did it bubble up over time? How did you come to identify it as failure?
- How has the failure stayed with you? How does it “haunt” your work? What lessons or cautionary tales have you carried forward? How does it affect the ways you think about your research or how you teach?

After each session, we each wrote a memo to note down points that stuck out during the discussion, questions we wanted to investigate deeper, and our own feelings during these meetings. Our collective memos added up to 8,000 words.

Once we had concluded our deep dives into the six projects, we read back through each narrative, the memos, and the transcripts from our six sessions. We open coded the documents and then performed a thematic analysis to start organizing the findings. Before we turn to those findings below, we note that our process of writing this article is also part of conducting the research itself, as Sawyer and Norris state: “in duoethnography, then, writing is simultaneously a form of data generation, data interpretation, and data dissemination, in not so nearly as linear a fashion as the finished text suggests” (p. 76) [94].

#### 4 VIGNETTES

Our retrospective trioethnography investigated failure by reflecting on our own past design projects. To help situate the findings, here we outline the six projects considered. Our projects enrolled approaches such as Research Through Design (RtD), reflective [95], critical [9, 32, 87], speculative [33], and discursive [104] design to engage societal critiques through design research. We chose these projects as sites of reflection because for us they held lingering unresolved feelings of unease, ambivalence, or discomfort that seemed ripe for myriad considerations of failures in design research. These projects were not trying to “solve” problems with technology, so solutionist or engineering evaluations of success or failure seemed inappropriate, inviting deeper reflection on what success or failure means for these kinds of projects.

*Riot* sought to understand the ways in which internet of things (IoT) technologies could be leveraged toward collective projects. Pairing ongoing activist work within the space of menstrual hygiene accessibility with the technological capacities of networked devices, Sarah and collaborators aimed to better account for the ways public goods are selected, distributed, and maintained [35, 39].

The *Heart Sounds Bench* amplifies the live unfiltered heart sounds of those sitting on it. Along with collaborators, Noura designed it to provide an affirmative yet opaque experience with bodily data as a critical alternative to the push for transparently knowing humans via data made by smart city surveillance efforts [60].

*Ripple* is a shirt with three thermochromic pinstripes that slowly change color in response to skin conductance, an ambiguous indicator of emotional excitement. To critique affective computing’s goal of enrolling data to accurately detect discrete emotional states, Ripple is designed to leverage ambiguity to invite participants’ open-ended interpretation of their feelings. Through this, Noura and collaborators sought to present biosensory data as unauthoritative with the transient materiality of a moment of warmth and shifting colors [59].

*Alternative Avenues for IoT* is a co-speculative project in which Audrey and collaborators imagine together with people living in a diversity of homes (e.g., a boat, a basement suite, a micro-apartment, a co-living space) what IoT could be if it were designed specifically for each co-speculator's home. They created *Bespoke Booklets* to gather sketches of imaginative concepts that move beyond one-size-fits-all IoT devices [24, 26].

The *Catalog of Partial Things* sought to extend existing participatory design workshop methods, which often privilege those who have spare time (e.g., no caregiving responsibilities) and ample mobility (e.g., easy access to public transit). In response to such limits, Sarah and collaborators circulated the ideas shared in an initial set of workshops on menstrual accessibility in the form of an editable catalog, opening up the design activity to others to perform asynchronously [37].

The *Human-Data Entanglements* project aimed at investigating the relationship between home dwellers and their home IoT data. They used a combination of first-person experiments, home tours, and creative activities with participants. As a result, Audrey and collaborators offered five speculative concepts that open new ways of being with data in the home [22, 23].

## 5 FINDINGS

Our findings explore many varied experiences of failure in lifeworlds surrounding design artifacts. We examine the extensive relational labor of deployment for all involved. We recount mismatches encountered when we as designers sought to critique societally ingrained imaginaries of technological innovation and progress. We reflect on the burden of participation, recognizing and sharing moments of unexpected participant discomfort. We recall challenges navigating the invisibility of researcher labor, and the sometimes-overwhelming influence of external factors. Throughout, we connect how our reflections engage existing critiques of design research practice, highlighting and echoing related work by others.

Typical for duo- or trioethnography, our findings seek to highlight differences and juxtapose experiences rather than seeking a unified synthesis. To that end, duo- or trioethnographies often present these experiences as first-person narratives or dialogues. This can take varied forms including extensive use of direct quotes from discussions or, in our case, narrative accounts, the writing of which constitutes part of our reflective process.

### 5.1 Deployment as Relational, Situated

We reflect on the subtle but persistent pull that we all felt as HCI researchers to deploy our design artifacts in “real world” settings. Among many instances of this pull, we juxtapose two illustrative examples here. Our narrative first-person accounts relate efforts for Sarah to deploy Riot and Noura to deploy the Heart Sounds Bench:

*Sarah:* The Riot team and I felt the need to realize the project within a large organizational setting to demonstrate that it could “work” beyond existing as a prototype. We found an early champion in an upper level management contact who quickly enrolled others within the organization to support our efforts and met with us to define the length of the pilot and subsequent deployments at partner sites. He arranged for us to meet members of the janitorial staff early in the morning before opening hours to calibrate the device and sort out the engineering needs associated with a long-term installation. But a few months into our collaboration, a new manager took the helm and there was an immediate change in tone. Though he initially replied to our inquiries about meeting times and other logistical details, he often left off key portions of the response (e.g., “no” to a question requiring specific dates or times). Eventually, it became more difficult to organize times to stop by and members of the janitorial staff conveyed confusion about the ongoingness of the

project. After several weeks of disjointed conversation, we began to have the sense that we were being sidelined.

In an effort to remedy any miscommunication, I reached out to the new manager to set up a time to meet in person. After I didn't hear back, I offered to answer questions he might have over the phone. He replied briskly that he understood the former manager had approved the collaboration, but that he had no intention of supporting it. After a few more attempts at connection, he stopped returning our calls and emails altogether. It is difficult to say whether he took issue with the project due to the topic or whether he simply did not want to bother with the complication that came with coordinating with researchers. Access left much more quickly than it came. Perhaps we should have planned for a quicker pilot? Yet, this would have gone against our aim of a long-term in-situ deployment. Might we have been able to engage a broader set of stakeholders? Without the blessing of the manager, a deployment within this setting would have been impossible. In discussing the situation with others in the organization, they told us that all decisions related to facilities and infrastructure would still ultimately lead back to him.

Listening to Sarah describe how her project found an early champion for site access that was later gradually rescinded prompted Noura to reflect on her own varied and extended efforts for gaining access:

*Noura:* It took a year of communicating with the City to get permits to deploy the Heart Sounds Bench in public. I sent many emails and went to multiple committee meetings, trying to make the project appeal to the varied interests of city stakeholders to gain their approval. I measured sidewalk widths all over town to make sure there would still be at least six feet wide sidewalk access even with the bench there. A few weeks later I unexpectedly got a call from an unknown number and was overjoyed to learn I was speaking with the permits office and could make an appointment with them. During the appointment, I tried to be ingratiating to this "keeper of the keys," while steering clear of anything that might seem overdone such as bringing homemade baked goods. I tried to foster an interpersonal connection and make pleasant conversation. I tried to fill out as many permits as possible; they limited it to a month and then said to come back if I needed more. I remember worrying at the time that they might not remember me and it might be another months long delay.

The deployment duration and locations were largely set by the city's requirements. A year of delay and very little control over the location of deployment were difficulties for the design process, but I understand their requirements are to protect public access and am grateful they worked through the whole process with me.

Our trioethnographic process enabled us to recount frictions of past projects, frictions that had been glossed over in prior "success story" narratives of these projects. Reflecting in conversation, rather than alone, sparked renewed attention to recounting details of our personal experiences and, through juxtaposition and further collaborative discussion, led to higher level reflections on design research practice and culture.

*5.1.1 Critically Questioning the Impulse to Intervene in Design Research.* These reflections point to broader systemic issues with deployment in design research. Beyond securing prototyping materials or establishing initial relationships, how do we ensure these systems maintain? What is the relational work involved? How does one navigate associated political and logistical constraints without them eventually subsuming the project? Engaging with the notion of deployment by

reflecting on a story of shortcomings allowed us also to think more critically about the technique. With combative overtones, the term “deployment” suggests an oppositional relationship between those who might do the deploying and those who encounter it in the world. It also indicates unidirectionality, where there is a centerpoint from which a design extends out to peripheries. In design practice, deployments act as a “type of field study, in which the focus is on the trial of a newly developed or created technology (often a prototype) in situ,” (p. 120) [98], offering a means through which to gauge the potential usefulness of a device or identify material constraints (e.g., power handling). But with this mode of inquiry, designers not only refine engineering specifications, we also place technologies within communities with social and political histories that meaningfully transform such interventions. When we focus too tightly on the feasibility of a particular device, we miss out on accounting for how our design work matters (or does not) within a particular context. Moving beyond evaluations that center the design artifact, our retrospective trioethnographic reflections allowed us to more expansively consider “failure” in design research as it relates to bureaucratic contingencies and the loss of access—or, more simply, the specificities on one’s research site and how a design might fail within its institutional context.

The impulse to intervene is a tendency that has been critiqued within recent scholarship on design research methodology. Baumer and Silberman call on colleagues to attend to “the complex ways technological interventions reconfigure the situations into which they are introduced” (p. 2273) [11], and report on the missteps and misalignments often unaccounted for in typical depictions of HCI design engagements. They suggest moving toward a more reflexive approach including describing prototypes abandoned, directions left unpursued, as well as “extravention”—or the removal of an intervention from its site of inquiry. Similarly, Homewood et al. describe *inaction* as a generative mode of engagement, where a researcher steps away from a design space that they deem inappropriate for intervention [56]. Within this burgeoning discourse on design refusal and extraction, we put forth the act of collectively reflecting on moments of loss and departure. Building on these recent critiques, we argue for reflection on not only the paths (un)pursued, but also those that faded, discontinued, or were withdrawn. Our own reflections surfaced how typical narratives of deployment take for granted particular forms of labor involved (namely as a relational endeavor, and the long-term maintenance and repair required) and how we might move forward differently with future engagements. These reflections also prompted us to recognize the ways in which our own positions likely have played a role in how these deployments unfolded. Through our reflections together, for example, we noted that collaborative partnerships with large institutions have since become easier to establish and maintain with our transitions to faculty (and subsequent revisions to our email signatures). Here, then, it is crucial to consider our own sitedness when noting the relative “success” of a deployment or pilot.

## 5.2 The Limits of Design Artifacts: Mismatches in Imaginaries

In the work of deploying design research artifacts, we also encountered difficulties navigating mismatches in sociotechnical imaginaries [68, 69] between researchers’ intentions and participants’ ideas of technology or design. Each of us in different ways sought to open up reflection with participants on alternative possibilities with technology, yet were struck by the degree to which participants’ ideas aligned with the very same dominant narratives of technological progress that our work seeks to resist and reimagine. For example, in Noura’s Ripple project, participants seemed to grant data authority regarding lived experiences and emotions. However, Noura’s goal was to infuse enough ambiguity in the design of the technology to push back against the authority of data:

*Noura:* Despite my design efforts to the contrary, for some participants Ripple’s display seemed to have the potential to foster or aggravate insecurities, as previously published [59]. For

example, as previously described in publication [59], one participant seemed worried the display meant she was “broken and unfeeling.” When this concern arose during the post interview, although my study’s setup could not gauge whether there may have been pre-existing insecurities at play, I felt responsible for dispelling whatever discomfort Ripple might have caused. I emphasized that the design could not indicate whether someone was “feeling” or “unfeeling” and explained again how the display only responds to particular kinds of intense excitement related to skin conductance.

A PhD student at the time, I was relatively inexperienced at qualitative interviewing. My decision to emphasize a particular interpretation of the artifact felt against the grain of probing participant reactions and experiences. After this point, the participant dismissed the display as completely random. My spur-of-the-moment reasoning behind this decision was simply, interview technique be damned, interpersonal care feels more important. In hindsight the fact that research technique could ever feel at odds with interpersonal care stands out as deeply problematic. I need to more deeply unlearn the “neutral observer” assumption.

This participant’s experience, analyzed alongside others, “yielded insight about how it can be difficult for a design artifact to resist the perceived authority of data in our present societal imaginary. I distilled her experience into an anecdote, a touchstone point in the paper, a laugh-out-loud yet sobering moment in the conference presentation and job talks. As I paraded her experience over and over again, each time I persuaded an audience of my cleverness, whatever point I was trying to make rang more hollow. I am left mainly with a feeling that I extracted or harvested others’ emotional experiences for my own career advancement. After this project, I shifted gears away from designing for open-ended emotional interpretation toward designing for more affirmative experiences.

We return to issues of extractive storytelling described above in Sections 5.3 and 6.3, but hold our focus here on mismatches in imaginaries. Listening to Noura describe navigating participants’ expectations with data resonated with Audrey, who also encountered mismatches with participants’ imaginaries around data. Yet, Audrey engaged these imaginaries differently, seeking to invite participants into a shared space of co-speculation. The central tenet of the Alternative Avenues for IoT project was to move away from solutionist one-size-fits-all concepts in IoT. In a form of discursive design, Audrey and her team purposefully used post-functional, humorous, and whimsical IoT concepts to provoke participants’ imaginations and pivot to co-speculate “what else” could be possible in terms of IoT. Yet, participants’ imaginaries around IoT were often heavily influenced by existing IoT narratives—the exact narratives we as designers sought to move away from—and these utilitarian IoT narratives prominently came through in the ideas they were contributing to our co-speculation:

*Audrey:* The bespoke booklets included five concepts made by us, and five by co-speculators. Our studio made a conscious effort to come up with concepts that had humor, a sense of whimsy, a clear relationship to the nature of this specific home, and a criticality against surveillance capitalism in home data. We believed this was the best way to open up alternative avenues for IoT and sever the tie to current trends in IoT. With the goal of imagining together, we wanted to recognize and celebrate this intimate knowledge of our co-speculators’ homes, but also direct their imagination toward new paths for IoT. We thought that by offering them a photo to draw on top of, and by filling in the first half of the booklet to show examples of whimsy and humorous concepts, our co-speculators would imagine creative and surprising concepts about another IoT.

We had a strong agenda, we had design and speculative design training, and we had been thinking about this space for a while: in retrospect it looked like we had “an advantage.” When we conducted our analysis, many of the participants’ concepts were not particularly surprising or novel. When we wrote about the work, our own drawings/concepts were inadvertently used in majority to illustrate our points. In the CHI paper reporting on the project [24], out of 21 concepts that served as examples, only one was designed by the co-speculators... (a count I only made while reflecting on the project during our trioethnography). Yes, those concepts built on what we learned from co-speculators guiding us through home tours and the photos that were taken, but they were mainly our studio’s interpretation of the visits (combined with our own agenda to dramatically reimagine IoT in other homes). I am still proud of the avenues we proposed, and I think that there is no way we could have come up with these five themes if it had not been for our co-speculators, yet, I feel like we misrepresented on the method by letting it appear as a “successful” co-speculation.

In hindsight, I reflect on how much work it took our design team to iterate toward the concepts that felt right. If it took that much work for us—trained in design and discursive design—was it fair to expect co-speculators to completely forget what they know about IoT and become “creative” on the spot? In our team, we talked a lot about how hard it is to scaffold creativity. We talked about how uneven the playing field is, about how we will always have a kind of advantage since we are framing the study. So, I am not sure where the failure is here: is it in the fact that I feel there is a level of dishonesty in how we chose to report on the project? Or is it that we actually failed at truly supporting participants in being creative? Or is it that they were creative, but it was not a creativity that was aligned with our expectations or standards? Is the failure in how we exercised too much authorial power in a project we had called a co-speculation?

Throughout our research efforts, each party (e.g., researcher and participant) brings to the table their intention, goals, and current understanding of the topic at hand, be it IoT, data, or the goals of design. Our reflections uncovered instances where researcher and participant understandings were mismatched: While Noura designed Ripple to challenge the authority of data, participants brought an expectation that this data display would yield “truthful” insight. While Audrey sought to explore beyond utilitarian home IoT in co-speculating with participants, participants frequently offered utilitarian design ideas. As design researchers, we are often pushing against common narratives surrounding technology, for instance that data is clear, clean and perfect; that IoT is supposed to serve functional and solution-oriented goals; or that design is always human-centered design. With our work, we are often aiming at finding alternatives, playing with ambiguous or alternative visions for data, technology, and design. This intention is often at odds with the normalized imaginaries often presented to the public.

This mismatch between common narratives around technology and design in the popular imagination and a desire to critique these narratives creates a challenging space within which to work, with a high potential for failure. When recruiting participants for a study with new technologies, the common assumption is one where research is positioned at the forefront of innovation and technological prowess. Participants may come in with the mindset of pushing technology forward (whatever “forward” means), while our goal as design researchers is so often to stop, reflect, critique, and explore alternatives that do not go “forward” (and may, in fact, mean moving sideways, backwards, or not at all).

*5.2.1 Challenges in Engaging Sociotechnical Imaginaries in Design Research.* Taken together, these experiences highlight how difficult it is to move beyond dominant societal imaginations

around technology, which are reinforced by news reporting, industry marketing, and academic funding structures. In tandem, the differences across our accounts illustrate different touchpoints where these imaginations clash: when imagining new technology or when encountering a new technological artifact. These examples illustrate a “gap” between designer researchers’ imagination and critical intent vs. the sociotechnical imaginaries participants bring to the table.

Moving forward from these reflections, we are eager to pursue alternative ways of navigating these sociotechnical imaginaries. While valuing that participants are experts on their own lived experiences, we also seek to, with participants, explore beyond dominant sociotechnical imaginaries toward imagining alternatives. For example, Noura is curious about employing alternative communication strategies such as a zine to bring research ideas “back to the field” [36], highlight conceptual shifts explored in her design artifacts, and invite dialogues with readers. Instead of extracting participants’ experiences for research publication (as described in Noura’s vignette earlier), publications could foreground the conceptual reworkings explored by the artifact.

Further questions toward navigating sociotechnical imaginaries include reflections on power relations between participants and researchers and how researchers can carefully build steps for someone else to come and join in. To engage in a critique or alternative exploration of technology, an imaginary far from popular culture and commonly shared narratives [57, 68, 69], we need to create a space for participants to suspend disbelief. This theme appeared many times because it is very difficult to do well and holds risks for failure. It is a constant challenge to find the right balance between offering examples, directing, guiding, and inviting participants to express their own ideas. We are left wondering, who is best positioned to imagine with design researchers, and whose imaginations do we really want to engage with even if they may not have the privilege, time, and resources to easily participate (see the following section)? We are also left with the lingering thought: what would happen if we tried to bring participants much more “in” on the critique by engaging in deeper dialogue or doubting the authority of data. Would these discussions lead to stronger speculations? Or would they feel dishonest through the eyes of “scientific research”? Would participants even have enough power in this relationship to disagree with the designers’ critiques to generate a dialogue? These questions influenced the research trajectory Audrey had planned for a current project about engaging fiction writing as a way to creatively represent home data [25]. In an effort to open a space for how fiction writers might be involved in writing stories based on data, Audrey’s studio is planning to host early workshops about how data are created, managed, aggregated and analyzed in the context of home IoT, with the intention of decentering common imaginaries around data and starting fresh to build new imaginaries. Moving forward, we see a need for critically oriented design research more broadly to explore finding balanced and appropriate modes of opening, facilitating, and holding dialogues with participants and collaborators.

### 5.3 The Labor and Burden of Participation in Design Research

While in the previous sections we focused on the practice of artifact deployment and participation in HCI and design research, here we take a critical look at the labor and burden of participation. Participation is work [99], and carries with it affective demands [31]. While some participants are enthusiastic and may not feel a heavy burden in participation, we each shared stories where the weight of research on participants’ shoulders became evident. In those moments, we are reminded of how research can be extractive, and of how much we need participants’ labor for certain types of research to work.

For example, Audrey reflects on one participant’s experience of the labor and burden of participation, and a participant’s difficulty in removing herself from a study:

*Audrey:* In the data-human entanglements project [22], we worked with participants in a sequence of phases over a few months. One participant did great in the first phase of the

project: her contribution was creative, poetic, surprising, and the research team invited her to join the second phase of the project. She promptly said she would be interested in continuing to work with us, so we sent her our next activity: a set of blank postcards for her to draw data from her everyday life. At that point, her personal life and work life became very busy and she was only able to complete 2 out of our 10 cards. This should have been a red flag, but she kept telling us she was interested in seeing the next phase. For phase three, our team needed to fabricate three props for her to use in making a short 60-second video. We delivered the probes, a couple of months after phase two. While she was still responding to our messages, she did not make the videos. She kept saying she was going to do it, and it stayed on her to-do list for months.

Eventually, I went out for dinner with her. During that dinner, I realized how much pressure this had been for her, it was like a small cloud hovering over her. Even if in our messaging with her we had been clear that she could stop the project at any time, and that it would be OK, our language was not clear enough to make her feel comfortable in saying no. At that dinner, she finally told me that she did not want to continue the project. Her body language changed, she felt relieved. Her partner, who was also there at the dinner table, also was relieved; he said she had been agonizing over this for weeks.

This story stayed with me for a long time. How could I have missed her signs? Why did she feel like she could not say no before that dinner? Why was a short video of 60 seconds putting so much pressure on her? If we had not met for dinner, would I have ever known? Or maybe another participant would have felt more comfortable saying no earlier? While consent forms state that participation is voluntary at all times, social pressure and personal commitment can be very strong.

Listening and responding to one another's recountings spurred us to reflect on how, across our different vignettes we find varied instances of the labor and burden of participation in design research. The Ripple vignette presented above (Section 5.2) illustrates an acute instance of upsetting emotional labor, in which a participant had to wrestle with the emotions of feeling "broken and unfeeling." This participant's experience presented above was perhaps less acute but more drawn out, not wanting to break her "promise" to "help" Audrey even though she felt burdened and stressed by participating. In a different instance, toward the end of an ethnographic engagement, a long-time interlocutor asked Sarah if she "got a good grade," assuming that her participation was meant to contribute to a course project for which Sarah would be evaluated. This often felt like a failure on our end in seeking ongoing, active consent, explaining how research works, and conveying the broader goals for research. These examples raise different issues of unexpected worries triggered by a design, proactive consent or opting out, and participant altruism. The vignettes above reflect on how participation, as commonly done in HCI research, is broken.

*5.3.1 A need to Rethink Participation in Critically Oriented Design Research.* Moving from these moments of reflection and self-critique to realignment and action, design research practice cannot continue to under-recognize the volunteer labor participants offer when they engage in research studies or activities. If anything, we as design researchers at least need to anticipate the emotional work that happens during studies, through our interpersonal relationships with participants. Going forward, we find opportunities to experiment with more equitable modes of engagement. For example, Noura plans to move away from traditional "deployments" toward public art that invites joyful interactions for passerby to engage or not as they wish, without "harvesting" participant experiences for "research insight." On her side, Audrey is working on developing a protocol to conduct first-person research with the students in her design research group as a way to further gain



conceptual insight about three prototypes they have been building in the last year, originally with the intention to deploy them in participants' homes. More broadly, there are many opportunities to rework methods and modes of engagement in HCI.

We want to highlight how participants' motivations for even being in the study remain under-reported in papers generally, let alone investigated by researchers for their studies [58]. It can be unclear whether participants are willing to offer their time and energy because they think the topic is important, they like the feeling of contributing to research, or they need monetary compensation or seek social interaction. If we knew more about those motivations, we could better orient toward their goals and align them with our own research objectives. Even though they may have initially volunteered, we reflect on instances where participation felt too heavy and participants had to drop out. For some participants, saying they need to leave a study is extremely stressful and daunting.

Based on these reflections, we argue for being more upfront about the cost of participation and to find ways to make explicit, equitable, mutually beneficial exchanges between researchers and participants. We resonate strongly with Howard and Irani's claim that "research subjects are active agents with agendas, accountabilities, and political projects of their own" (p. 97) [58]. We are left wondering: in what ways could we align participants' goals (of socializing, of being curious about tech, etc.) with our research goals in participation? What would participants really benefit from in exchange from participating in a study? More broadly, we need to pay more attention to the different roles researchers play during their studies [70] such as facilitating and encouraging participants (to what extent?), or explaining (how much should be kept secret or open?), while still balancing levels of formality or familiarity one might have with participants. Leal, Strohmayer, and Krüger present reflections as a group of "critical friends" on challenges of navigating activism and academia [74]. We offer these moments of failure in participation to encourage more candid, reflexive reporting on these issues in HCI publication.

#### 5.4 Temporality of Failures and Researcher Labor

Project timelines rarely unfold as neatly as research publications might suggest. Our discussions allowed us to revisit the messiness and many varied attempts comprising our projects before they became tidy *post hoc* narratives. The scale and timing of our attempts in tandem with our shifting assessments of attempts' outcomes were key to project management. As design researchers, when, how and why do we decide if an attempt is not/working, un/finished, success/failure, a bit of both, or something else entirely? Our discussions also surfaced unrecognized research labor as a risk with the potential to harm both sustainable work practices and the research output. We argue that greater consideration and more candid reporting of the scales and temporalities of research efforts, and greater recognition of researcher labor, can both enrich the insights gained from design research projects and help make legible design research practice.

*5.4.1 Scale and Temporality of Design Research Attempts.* Across our reflections, instances of failure had different scales, temporalities, and affects. In this vignette, many small failures served as exciting ways of learning early on in the design process. Having the resources (time, materials, space, job security, etc.) to fail in low-stakes endeavors can be generative. Sometimes these failures are anticipated beforehand and welcomed as they are worked through. Sometimes they come by surprise, perhaps with more frustration:

*Audrey:* The start of the data-human entanglement project was a series of attempts, failures, semi-successes, and tentative paths forward. We were so unfamiliar with IoT data that we decided our best approach was to try many things at once. We took a relatively fast pace and worked on various strategies in parallel. We combined first person experiments about existing data for IoT, with using our bodies as sensors, getting familiar with home

IoT apps, and drawing data postcards. Our intention was to probe the edges of the access everyday consumers might have to their own home IoT data. We expected to fail, particularly when working within the frame of large data infrastructures. Along the way, many things we tried did not work, often as predicted. For example, we were not able to retrieve our data for some IoT devices, even after calling customer support—producing generative failures from a research standpoint. But some failures, while still fast and “small,” caught us off guard. For instance, we also were not satisfied with the aesthetic qualities of our postcard drawings. As designers, we had assumed too quickly that any hand representation of data would be interesting. But we realized that “being a sensor” required getting rid of assumptions about how sensors work, and representing data by hand still required a lot of design work. As a collection, all these things were mini-failures, intentional or not. But they were small and we felt like we were moving forward with the help of these small failures. As we were meandering, encountering these failures felt part of the work of probing the edges of access to data and finding points of resistance, even if frustrating, felt like new learnings.

In the Human-Data Entanglements, Audrey described perceptions of attempts as “success” or “failure” as remaining relatively stable over time. Reflecting on how we perceived failures emerging prompted Sarah to articulate how, with Riot, the perception of “success” or “failure” shifted drastically over time:

*Sarah:* When the facilities management organization announced that they’d been making menstrual products freely available, it felt like something of a victory [39]. My collaborators within the Women’s Action Commission had long fought for this level access, and the institutional win felt like something that could carry them forward into their regional and state-wide campaigns [39]. But with longer term reflection, I began to have a lingering sense of disquiet about the announcement. I knew from my ethnographic engagements with the facilities organization that the decision was ultimately driven by a desire to reduce budgetary expenses. Prior to simply providing menstrual resources for free in baskets and acrylic containers, they instead distributed products in costly coin operated metal dispensers (roughly \$300 for the cheapest version), which were prone to breakdown (leading to added costs, in form of materials and labor). Additionally, though these devices were brittle and needed regularly maintenance, I learned from a supervisor that janitorial staff did not have the authority to handle machines because the devices collected coins and management harbored concerns on theft [39]. This institutional policy restricting janitors from maintaining the machines effectively led to the issues of menstrual inaccessibility activists had sought to address, and made repairs more costly [39]. Rather than a direct response to the activists’ call, administrators realized that their spending on the metal dispensers totaled more than simply making products available for free. My project then served as a catalyst for members of the facilities organization to reflect on inventory and the costs of maintaining machines, yet the underlying issues of gender justice and classist organizational policies were left unaddressed—a distinct form of failure.

Additional temporal considerations from our discussions underscore varied ways time binds both researcher and participants. Across various projects, the time bounded nature of a traditional workshop excluded participants with caregiving responsibilities or those stuck in hours of traffic. Access to a deployment site only in 30-minute early morning sessions dramatically shaped technical development. The long, slow, gradual edging out of access to a research site made it all the

more frustrating. Crunch time before deadlines led to unhealthy overwork and burnout. By reflecting more closely on temporal constraints and our experience of time, our discussions revealed how time allocated to different phases of the design research process was tied to key decisions determining who could participate, research “yield” in terms of career pressure to publish regularly, and sustainability in terms of healthy work practices. We argue that more honest reporting of time and temporal constraints in CHI papers can help elucidate the RtD process.

Sometimes failures stem from factors beyond researchers’ control, stalling, detouring, or entirely halting projected timelines. These led to some of our largest felt failures. Our discussions let us surface these instances, acknowledge the effort and difficulty, salvage what we could from the wreckage, and move on:

*Noura:* The second version of the Heart Sounds Bench faced a series of unexpected difficulties. During the build phase, I got sick for three months and was physically unable to build the bench. Then widespread fires and power outages made city stakeholders busy and unavailable. After a year of working with the City to obtain permits, COVID-19 lockdown orders axed public deployment.

This account illustrates the sometimes overwhelming influence of external factors, from revoked access and personal illness to environmental disaster and the pandemic. In doing so, these accounts challenge linear narratives of “design decisions” building up in a controlled manner to a “successful” design. They also point to the unpredictability of project timelines, how factors beyond control can lead to delays or premature endpoints. These temporal shifts may be especially challenging for early career researchers needing to make regular progress toward degree completion or tenure. Additionally, the temporal stage in each design researcher’s career trajectory defined the degree and depth to which they were able to commit to a particular project, or the types of projects they took on. For example, Noura abandoned a rich line of inquiry with e-textiles to strategically work with a different physical material to broaden her portfolio for the job market. As a new assistant professor, Audrey sought to break away from her advisor’s research program and strike out on her own. Instead of assuming research can proceed at a steady pace, along linear narratives of causality that presume a designer’s control and a design artifact’s intended impact, we call for complicating research reporting to include external factors. We return to disciplinary issues of research reporting in Section 6.2.

**5.4.2 Invisibility of Research Labor.** The invisibility of research labor to others on the research team emerged as a key issue. Invisibility of research labor led to both unsustainable work practices and challenges in qualitative analysis:

*Noura:* The Ripple shirts used a particular kind of conductive thread that was extremely fragile. Threads broke almost every time the shirts were worn. Soldering repairs required several small but tedious, delicate steps: dissolve adhesive, untwist, snip, burn off enamel, clean with flux, twist with wire, solder, seal with adhesive. I was overwhelmed maintaining the shirts and running the study in the final weeks before the CHI deadline. The compressed interview schedule left me very little time for qualitative analysis, emotionally exhausted, and burnt out. For two years after that CHI deadline, I avoided doing any HCI studies because I was afraid of experiencing that pressure and unhealthy crunch time again.

In this example, the labor of maintenance and repair [65] was acutely felt, but not reported in the research publication. Drawing from Poster et al., we reflect on how this labor was “pushed out of sight” by architectural and institutional factors [88]. The soldering occurred in a basement lab across campus from the main departmental building. Not only was the activity of soldering

itself physically hidden from view, when done well the result of the soldering labor was invisible, repairing the e-textiles garments to their original state. Additionally, the emotional labor [47] of intensive interviewing [8] and crunch time to meet too-tight deadlines led to persistent issues of overwork and burnout:

*Noura:* After 2 years of avoiding it, one summer I brainstormed fresh design ideas again, leading to the Heart Sounds Bench. I started building in August and ran all user studies the week before the September CHI deadline. Again, the physical making and emotional interviewing were extremely taxing and led to burn out. Yet, I still wanted to, still want to, do a second version of the Heart Sounds Bench in public. Even as we reflect on the burden of participation and critique the urge to deploy, I have a deep curiosity about how others will experience what I make, and how their experiences open possibilities I could never imagine.

Our reflective process enabled discussing these difficult, recurrent issues as failures in design research practice, and trace these failures to issues of project management and labor recognition. Providing another perspective, Audrey, as an assistant professor, experienced challenges trying to more fully perceive grad student labor. By engaging in these discussions together, through retrospective trioethnography, we could examine related issues from multiple perspectives in differing roles in academia, to enrich our reflections:

*Audrey:* The Alternative Avenues for IoT project was my first project as a new assistant professor, just coming out of my PhD. In this new role, I assembled a team of design students for the project. I was learning how to manage the team and how to distribute workload between everyone. Part of the project required researchers to visit participants' homes for a home tour including an interview and taking photographs. I decided to pair students up and to let them conduct the visits with our sixteen participants. This felt very odd to me because I would be removed from the field and would hear what happened only through the reports of my students. Before sending students to visit participants, however, we conducted one pilot round where I played the role of participant and one student visited my campervan. In that role, I could both test the sequence of our home tour protocol, but also feel it from the participant's perspective. After a few small adjustments, we decided the protocol was ready and the students went on to conduct the home visits. As the students shared back their findings, I felt like there always was a semi-translucent filter on the data: I could not quite see everything with the same clarity as if I had been to each home tour in person. I trusted the students, but I also was left with a feeling of not knowing what I missed... I quickly learned how to ask questions to help them reveal certain parts of their visits that they might otherwise have glanced over.

Here, task delegation led to a "semi-translucent filter on the data" obscuring qualitative insights. This led to challenges in the analysis phase of the project. New to the role of assistant professor, Audrey had to learn how to allocate workload fairly. This example raises the importance of delegation, what can be delegated, how to delegate, how to communicate experience within the research team—already a part of design projects, but a part that often goes under-reported. Moving forward, while balancing time commitments, Audrey now tries to remain closer to at least one instance of each research activity her group is doing, joining herself in conducting interviews alongside students, sketching, prototyping, or living with prototypes. Engaging recent calls for worker-centered design [38], our work offers reflexive, vulnerable accounts of recognizing and perceiving research labor as experienced in key differing locations in academic hierarchy, graduate student and professor.

*5.4.3 Recognizing Researcher Labor, Telling Richer Stories.* Our trioethnographic accounts surface the powerful role of temporality in shaping project trajectories: evaluations of success or failure can shift dramatically over time (5.4.1), or external factors can drastically alter or even prematurely cut off project timelines (5.4.1). Simplistically, project management and meeting deadlines can be approached as allocating appropriate amounts and types of resources at appropriate times in the schedule, such as allowing for multiple fruitful “failures” early on in the process, or allowing sufficient time for the sometimes painstaking work of maintenance and repair. Although crunch time before the CHI deadline may be perceived by some as an acceptable period of intense difficulty, crunch time is a euphemism for bad project management. Even the term “crunch time” is problematic. Time does not crunch, fold, or alter, it is people who contort or stretch themselves during this period, sacrificing sleep, health, or other non-research duties in ways that may be varyingly experienced as exhilarating or harmful. Recognizing researcher labor is not only an ethical imperative, it is also simply good project management.

More broadly, beyond our individual vignettes, recognizing researcher labor in academic contexts is a systemic issue tied up with power relations of academic hierarchy, institutional denial of acknowledging graduate student labor as labor, and lack of reflexive reporting on project management in HCI. In moving forward from these reflections and critiques toward more equitable academic labor, we consider how professors have significant choice in how to organize their research group. Research group culture may counter or reinforce systemic issues that significantly impact both student and faculty well-being, yet academic hierarchies make it difficult to speak up in ways that might be labelled “complaint” [17]. Now in the role of assistant professor, we draw from Hammer et al.’s critiques of toxic aspects of academic lab culture and their practical alternative strategies [49] and Liboiron et al.’s feminist process for equitable, consensus-driven authorship [76]. Broadly, we call for more resource-sharing, reflexivity, and accountability in navigating challenges of managing research projects and for valuing—both in authorship and compensation—graduate student labor.

Additionally, we echo calls by others to move away from the individual paper as the unit of analysis [89]. Our reflections reveal how documenting the broader trajectory within which each project fits helps make legible not only key design decisions (something HCI is already committed to reporting on), but also broader research aims and larger, more longitudinal questions. We suggest attuning more to people’s work as a cohesive research agenda, rather than to each project in isolation. We also note that CHI’s annual deadline means doctoral students have only a few chances to publish at this prestigious venue before going on the academic job market (if they choose this career direction); in contrast, CSCW has multiple submissions deadlines per year. Future work should continue exploring how these considerations might influence the review process and organization and presentation of digital research repositories.

We raise questions for rethinking publication and knowledge dissemination practices in design research: How might design research communities devote less attention to papers as individual “units” of research and devote more attention to people’s broader, more longitudinal research agendas? How might this shift the review process, the organization of the ACM Digital Library, Google Scholar, or other means of disseminating research? What might be risks or benefits to equity and inclusivity of reworking these standard practices? What if HCI papers regularly documented how much time was devoted to each phase of the process? What if HCI papers consistently noted where time constraints were acutely felt? These questions are intended as provocations, joining with other recent calls to reimagine how research is circulated in HCI, such as Chen et al.’s call to critically reflect on and reimagine the sociomaterial construction of the HCI research paper toward more feminist, situated, and reflexive dissemination practices [16].

## 6 DISCUSSION

Our trioethnography took failure in design research as a starting prompt for reflection. We did not choose a specific definition of “failure.” Keeping the “scare quotes” around the concept of “failure,” we engaged the concept as a vague yet sticky and embodied feeling. In this sense, “failure” served as a pointer: away from neatness toward messiness, away from comfort toward discomfort, away from “success” toward something more nuanced. We explored feelings of discomfort, frustration, friction, regret, interpersonal tensions, project management difficulties, rants, complaints, worries, and doubts that lingered with us long after project completion. Our recountings and conversation spurred us to new reflections and insights we would not have had alone. Maintaining a supportive environment free of judgment, guilt, pity, or shame enabled us to find generative learnings in sifting through the messiness of our “failures.”

Our findings connect personal narrative accounts to systemic issues in design research practice. We reflected on how the impulse to deploy design artifacts can obscure particular forms of relational and emotional labor (Section 5.1), and critically question the impulse to intervene with design (Section 5.1.1). We articulated challenges navigating mismatched sociotechnical imaginaries between researcher and participant, where critically oriented design research seeks to critique and rework dominant notions of technological innovation and progress, notions that were deeply ingrained in participants’ imaginations (5.2). We described problems with the labor and burden of participation (5.3), and call for rethinking participation in critically oriented design research (5.3.1). We critique the invisibility of researcher labor from contrasting perspectives of graduate student and professor (5.4.2), calling for fair labor practice in academia and raising questions for rethinking publication and knowledge dissemination practices in response to these issues (5.4.3). Overall, our personal accounts serve to highlight broader issues throughout design research practice and underscore the need for systemic changes in design research practice.

In the discussion, we offer pathways through and beyond the failures in design research recounted in our findings, seeking the beginnings of systemic changes in design research practice while also considering short-term individual “coping strategies”: We provide detailed methodological considerations to assist others in engaging with retrospective trioethnography to reflect on and learn from failures in design research (Section 6.1). We describe letting go as a mode of research care, from improvised departures from interview protocols to more strategic reworkings of method and modes of engagement throughout design research and its dissemination (6.2). In response to thorny issues of unrecognized labor and extractive storytelling, we reflect on translation work of HCI publication and calls to move away from the “heroic designer” narrative (6.3). We discuss how centering failure has the potential to contribute to design justice by providing a technique for making sense of our own practices (6.4). Finally, we reflect on limitations and failures of this very publication (6.5).

### 6.1 Methodological Considerations for Using Trioethnography to Reflect on Failure in Design Research

We offer methodological considerations on engaging retrospective trioethnography. We put forth our own process, our particular way of doing retrospective trioethnography, to assist others who may wish to use retrospective trioethnography as a means of attending to and learning from failures in their own design research practices. We found this method well-suited for reflecting on thorny issues, spurring insights for our own practice. We emphasize here that our method is not only centered on finding ways to reflect on failure, but to do so via duo- or trioethnography. Our considerations include carefully choosing co-conspirators, generous opening questions, following trains of thoughts to rearticulate meaning, acknowledging ourselves as instruments for research, and paying attention to forms of materializing dialogical exchanges.

*6.1.1 Finding Co-conspirators.* First, we outline characteristics of our own group, as a way to inform how others might find co-conspirators for their duo- or trioethnographies. We believe that the depth of reflection came from doing this work together, in a supportive group and environment. For us, bringing together people who were somewhat distant from the projects to be discussed brought fresh questions and perspectives on old work, deepening our own reflections. At the same time, we purposefully chose partners with similar research methods to build on a common base and more easily skirt sometimes-contentious epistemological tensions. Alternatively, we speculate that researchers deeply invested in appreciating others' methods might take up methodological frictions as a topic of reflection. Having peer status in the academic hierarchy helped us candidly reflect on power relations; at the time of this project, we are all assistant professors. Coming from different institutions contributed outside perspectives and an ease to candidly discuss interpersonal relations within one's own institution. To buttress against the stigma of failure, one of our considerations in publishing these reflections is that we all have some job security; not tenure, but also not on the job market. This approach of reflecting on failure can be beneficial and generative even when the reflections themselves are not published, but are instead inform future design practice. Finally, each of us shared instances of our own failures, which created a sense of reciprocity.

*6.1.2 Opening Questions and Collaboratively Rearticulating Meaning.* For others who might want to explore their own failures through reflection, we offer orienting questions to spark discussion: What is something you always wanted to talk about for this project, but never found a place for? What aspects of this project felt uncomfortable for you? What is sticky? What is lingering? How would you describe this project if you could assume your audience was generous instead of judgmental? When reflecting on the moment of failure, how did it unfold? Who did the moment fail, and how?

Through engaging these open-ended questions together in conversation, we collaboratively rearticulated meaning and found new insights. Rather than beginning with a set of values by which to evaluate our projects, our discussions worked in "reverse" whereby reflecting on why aspects of a project felt like "failures" surfaced the values at play. We had to "fail" according to some system of value: by what measure did something "fail"? These reflections iteratively evolved with re-articulation, surfacing insights and values along the way. To illustrate the highly collaborative process of reflection in trioethnography, we outline how this process surfaced insights about the values at play in one example project. With Ripple, immediately after finishing the project, years before our trioethnography, Noura felt deeply uneasy about participants' discomfort with the project and took several months away from hands-on design practice, reworking her research agenda to avoid harm and promote healing. Entering our trioethnography, Noura initially brought up tensions with Ripple as a design failure to support the desired interactions of open-ended interpretation, leading to unexpected ethical issues with participant discomfort. We collaboratively rearticulated this in terms of how Ripple failed to bridge the mismatch in imaginaries between the designer's conception of data as open to interpretation and participants' conception of data as authoritative and unquestionable. Upon deeper reflection, we surfaced that perhaps the failure is in the designer's expectation that a single artifact could so drastically alter participants' expectations around such a deeply entrenched sociotechnical imaginary about the power of data. This led to questioning the impulse to deploy, where an alternative approach might have been to analyze the conceptual reworkings of the design as the research contribution. We also reflected on participants' discomfort with Ripple as a failure to care for participants, and how Noura's improvised decision to prioritize care over "neutrality" during an interview underscores care as a key value. Yet, still further reflection on how participants' experiences were represented over time surfaced ethical issues of the extractive burden of participation. Also, discussing the difficulty of meeting

the CHI deadline with Ripple led to questioning the value of meeting deadlines as a marker of success. Each of these iterative reflections mark instances of collaborative meaning-making, surfacing new insights that Noura had not previously reached alone. Reflecting on *why* something felt like a failure surfaced our own designerly values, bringing them to our attention for careful inspection, to question, critique, and hold ourselves accountable.

**6.1.3 *Our Bodies, our Research Instruments.*** In engaging the questions above, we acknowledged ourselves as instruments of research. Our emotions as ways of knowing were integral to our approach, whereby examining lingering feelings of friction or unease led to articulating insights and design values. The emotional tenor of our individual narratives and subsequent discussions played a key role in this. We built and maintained a supportive, non-judgmental tone for all our discussions. In this atmosphere, sharing our perceived failures with others made us realize we were not failing alone, that others struggled with similar issues too and that we could find benefit in working through those issues together. We heard, recognized, and honored one another's experiences; instead of empathy this was more like *being with* [13] or *moving alongside* [73, 77]. Shame had no place at the table, and there was very little room for the unproductive mire of guilt [79]. We did carefully reflect on interpersonal relations and disparate harms for individuals. We brought a sense of gentle self-deprecating humor, cheerfully shared rants, and frustrations—convivial emotions that helped us talk through issues. Rather than placing blame, we sought to articulate systemic or underlying phenomena at work, design values, and strategies for practicing those ideals. Although we speculated some on how we or others might have done things differently, we primarily sought to describe phenomena as they had already unfolded both on an interpersonal level and in terms of broader contextual and systemic factors at play. We also turned curious and eager attention to how we might approach our work differently in the future.

**6.1.4 *Finding a Form for Dialogical Exchange.*** The process for building dialogical exchanges in trioethnography varies greatly between projects. For instance, Agosto et al. [1] used physically walking across campus to situate their exchanges, while Huckaby and Weinburgh [61] exchanged letters and song lyrics. We encourage future duo- and trioethnographers to think through what mode of communication might serve them best, considering the types of reflections they want to engage. In our case, we found value in multimodal modes of recording: individual long form written narratives, combined with asynchronous comments and questions felt like a strong starting point for our synchronous discussions. Transcripts of our exchanges were also very fruitful to read, as a place where sometimes more honest or less “rehearsed” reflections would come out. Our memos were shorter and crisper, allowing us to keep track of the important themes as they emerged. Finally, iterating on drafts of this paper positioned our own reflections in contrast or alongside current call for actions in the field, furthering and deepening our learnings.

In our project, we learned as much in our conversations and exchanges as in our way of writing this article for an audience beyond ourselves. This opens up an opportunity: collaborative reflection in the form of duoethnography might be a beneficial and fruitful approach for design researchers even if they do not intend to write the results of the duoethnography publicly. There many legitimate reasons why researchers choose not to share their reflections. Yet, having gone through this process, we note the work necessary to articulate our analyses in a paper form helped us further frame the next steps of our own research agendas, as well as contributing to the field.

## 6.2 Letting Go as a Mode of Research Care

Across our reflections, we noted instances of letting go, where moments of departure led to broader learnings about how our research initiatives develop and evolve. Responding to issues with the labor and burden of participation (as we described in Section 5.3), and the need to



rethink participation in critically oriented design research (Section 5.3.1), we explore possibilities for participants to “let go” by creating openings for dialogue and checkpoints along the way. It is insufficient to rely solely on institutional ethical protocols or existing standardized methods for research engagement. We argue that design research practice needs to more openly acknowledge the relational nature of this work of participation, and allow for more ongoingness in our consideration of what constitutes an ethical encounter. For example, Harrington et al. provide guidelines for more equitable community-engaged design research [52], and Asad offers *prefigurative design* as a framework for more equitable community-engage design research [5]. Stemming from our reflections, one tactic could be an active affirmation approach, where participants are offered opportunities to explore their shifting relationship to the project and affirm their continued interest. For design researchers, this would mean acknowledging the authority that we possess in creating research encounters and actively seeking ways to ease the stress of departure for participants. Rather than loss, leaving can offer valuable insight on the project as a whole. These considerations ask that as researchers we rework participation to be more equitable, a key goal of design justice, by caring about and exploring tactics for letting go.

A second form of letting go may help cope when external factors derail or halt project timelines (responding to issues raised in Section 5.4.2). In some cases, external factors such as extreme weather events and the COVID-19 pandemic can prevent work from proceeding as planned. The Heart Sounds Bench embodied this form of letting go, where a compounding set of circumstances made public deployment untenable. More mundane or bureaucratically imposed standstills, as with the library deployment of Riot, offer a subtler sense of closure, where departure is more like slowly closing a tap than halting to a stop (Sections 5.1, 5.4.2). Under the tight deadlines of conference submissions, push-backs and pivots such as these can feel devastating, particularly for early career scholars for whom publication records might be crucial for advancement in graduate education or in securing career opportunities. Here then, the type of collective letting go we might need to do as a research community is of the expectation of twice-yearly publications. When doing community-based and ethnographic design research projects, such rapid markers of research progress obscure the contingencies we face in conducting this work and often do little to advance our methodological understandings of how projects unfold over time.

Collectively, these examples point to acts of letting go as a mode of research care. The first form of letting go expresses care for participants by employing tactics to ease the burden of exit for participants. The second form consists of a combination of self-care, team-care, and collective research community care for the researcher by moving beyond guilt or shame associated with “failure,” letting go of project plans and moving toward reworking methods and modes of engagement. In this way, letting go aligns with recent efforts to outline more just research practices for HCI [5, 30, 52, 75]. Asad and others describe the need to transform the social relationships of research, and the forms of extraction perpetrated by existing structural hierarchies inherent within current arrangements [5–7]. Practicing justice means attending to harm and healing, by creating fairer conditions and continually seeking out ways of mitigating the exploitative tendencies of research labor. In trioethnography, we find a technique for examining such ethical and methodological questions in our own research practices, drawing connections between our personal experiences and broader systemic issues.

### 6.3 Translation Work, Extraction, and (Dis)Honesty in Reporting

We began this article motivated by a desire to challenge success narratives and tell richer stories of design research. Here, we critically reflect on how tidy success narratives glossed over important issues in our own work, and point to possibilities for more honest reporting in design research. For example, Noura reflected on ways she leveraged participant experiences in formulating an

engaging narrative for the purposes of publication and research talks. Through collaborative retrospective trioethnography, she was able to recognize the extractive nature of such storytelling (Section 5.2). Similarly, considering what forms of labor went (un)reported in research publications led us to broader reflections on exploitation within research labor, as well as the academic hierarchy of power relations within which we in academia are all embedded (Section 5.4). In reflecting on the Bespoke Booklets project, Audrey realized that only one of the 21 concepts described in her publication was designed by a co-speculator (as opposed to members of the research team). Through our process, she was able to recognize and contend with the shortcomings of the work in scaffolding creativity, and critically explore further avenues for participatory speculation techniques (Section 5.2). With Riot, Sarah sought to honor the existing advocacy work happening around menstrual access. Across these accounts, we consider the need to take care when claiming impact, to attribute credit widely and place fault narrowly.

These varied considerations and points of contention on labor, attribution, and credit underscore calls within the design research community to move away from the narrative of the “heroic designer” toward more modest and relational accounts. Irani and Silberman [64], for example, note the tendency of news reporting on HCI work to hone in on stories of design saviorism, rather than recognize collaborative efforts or celebrate ongoing acts of maintenance over time. Parvin similarly discusses how design storytelling can risk being extractive, and how reciprocity, responsiveness, and communion are crucial in doing justice to the narratives we generate and retell [86]. Alongside such critiques, there has also been a recent push within HCI to further consider the role of the researcher in shaping the work done, with positionality statements becoming a hallmark of qualitative writing. In extending such efforts, we recognize the need to look at the margins of typical accounts, or what we might ordinarily leave out of our research publications—the ambivalent, untidy stories of failure.

All projects have shortcomings. Normalizing this and more openly reporting on the ways we respond to and move forward from misalignments or missteps is offered here as one partial way forward in formulating more responsive and responsible design research methods and reporting. Retrospective trioethnography gave us the space to confront the ways in which we contribute to systems of power within and through our work. In grappling with our own feelings of disquiet and frustration collectively, we also began to envision research done differently or how we might take forward the lessons learned. For example, moving away from typical deployment or extractive storytelling opens possibilities for more just design practices, such as bringing research results back to the field [36], more thoughtfully scaffolding dialogue with participants to more directly talk about differing sociotechnical imaginaries, more candidly reporting on participant and researcher labor, and questioning the necessity of deployment.

Broadening a reworking of research communication to the field writ large would take not only the commitment of individual researchers, but also reviewers, book editors, and audience members who contribute to publishing norms in myriad ways. Citational practices that give extensive credit to prior work may seem to diminish a sense of authorial contribution in the perception of reviewers or book editors. Yet, as Rankin and Thomas make clear [90], citational practices are a key form of recognition and career advancement in academia. Alongside the need for a broader shift in design research reporting practices, we re-iterate calls by Noble, D’Ignazio, Klein, and many others to cite junior scholars and scholars of color as one small way to move away from “authorial saviorism” in research reporting narratives [29, 72, 83, 84].

#### 6.4 Trioethnography as an Approach for Engaging Design Justice

As Asad describes, “it can be difficult to make sense of how to incorporate the more abstract concept of justice into our research practices” (p. 1) [5]. Our retrospective trioethnography helped

surface and articulate ways in which our design projects “failed” according to values of design justice that were insufficiently carried through yet deeply important to us. The goal of this article is not to provide a list of such values, though we have drawn connections to calls for design ethics and justice throughout. Rather, this article foregrounds the reflexivity of our trioethnographic process to offer a technique for deeply and practically engaging such ethical and methodological questions, hinting at moments where reflection and critique turn to realignment and action.

As examples, our reflections led us to question and critique our impulse to deploy, and to hold ourselves accountable to ways our design work matters (or does not) to particular contexts and communities with social and political histories (Section 5.1). Recounting uncomfortable moments with participants helped us recognize the burden of participation and articulate the value of equitable exchange with participants (5.3), a key value of design justice, and to see how this value was insufficiently embodied in our own past research practices. Responding to this in the discussion, we offer letting go as a strategy for mitigating harm and providing more care in research practices (Section 6.2). By articulating invisibilities of researcher labor (5.4.2), we underscore calls to rework academic labor relations to be more equitable. Responding to broader issues of inequitable labor for both participants and researcher, we discuss strategies for reworking research communication norms away from the “heroic designer” narrative toward more modest, relational accounts (Section 6.3). Of course, these values are already shared by many in HCI. The unique contribution offered by a retrospective trioethnography is surfacing ways in which these values were deeply at play yet insufficiently carried out throughout our design process or reported in publications. If we had instead initially selected a set of values by which to evaluate our designs, we may not have realized what was deeply important yet missing from consideration. To practice our design values, to do design justice, the process of critical self-reflection is essential to holding ourselves accountable.

## 6.5 Limitations and Failures

In an article challenging success narratives, we would be remiss not to explicitly acknowledge limitations and failures of this article itself. Although our process of retrospective trioethnography enabled us to generatively engage difficult personal experiences in prior projects, helping us link these difficulties to calling out systemic issues in design research practice throughout the findings and suggest alternative possibilities in the discussion, we have largely imagined alternative tactics that may be taken up by an *individual* researcher or an individual research group, such as an advisor and their students. This is problematic because such individual tactics, and even the ability to reflect on failures as we have done, may not be practicable for many. Learning from failure requires time, effort, emotional capacity, and the privilege to survive potential stigma surrounding failure [96]. Early career scholars needing to progress to degree completion or tenure on a fixed timeline or scholars facing extra career pressure due to axes of social marginalization may legitimately feel a need to hold to success narratives as they navigate an already challenging and discriminatory academic culture. Furthermore, individual tactics, even if adopted by many, are still insufficient to challenge systemic issues in design research practice. Greater attention and willingness to make structural shifts to address systemic issues is needed among the design research community writ large.

## 7 CONCLUSION

In this article, we asked, what can design researchers learn from failures? With retrospective trioethnography as our method, we reflected on our past projects to center what had been marginalized by the success narratives of prior publications. We examined lingering feelings of discomfort, frustration, or guilt with the intuition that something of value lay hidden beside the

stories of normative success. Through this, we articulated less glossy but ultimately richer stories of our past projects and ourselves as design researchers.

Through retrospective trioethnography, we brought three first-person perspectives into conversation. Rather than seeking unifying synthesis, trioethnography foregrounds differences across varied experiences. This polyvocality of storytelling helped us explore the complexity of failure in its many varied occurrences, and listening to one another sparked reflections and insights we would not have reached alone. Our first-person accounts illustrate different ways “failure” and “success” manifest and co-exist in design research processes, how these notions become articulated through dominant values and narratives, and ultimately move beyond failure/success binaries toward telling richer accounts of design research.

We expand notions of failure beyond evaluations of an artifact or interaction to more broadly consider surrounding lifeworlds. Reflecting on our own impulse to deploy, we surface how typical narratives of implementation obscure particular forms of relational and emotional labor. Pertinent to critically oriented design research, we surface mismatches in sociotechnical imaginaries between designers and participants and provide examples of the challenges of navigating that mismatch, where we as designers sought to critique deeply ingrained imaginaries of technological innovation and progress. We raise issues with the labor and burden of participation, recognizing and reporting on instances of participant discomfort—adding to a broader push to rework participation in HCI toward equitable exchange. We also raise issues with invisible researcher labor, joining calls for fair labor practice in academia. Through this, we add accounts to existing hard-hitting critiques of design, illustrating how these issues may come into play in nuanced, varied ways, while outlining connections to systemic issues of design research practice.

Our contributions begin to explore alternative possibilities for design research practice: (a) Our detailed methodological considerations invite others to engage with retrospective trioethnography to reflect on failures in the context of design research. We invite design researchers to take pause and craft moments of collective reflection during and after their design research processes, to work through and consider failure in whatever form it might take. Dialogue and attention to differences across experiences may support efforts to work through uncomfortable issues, and spur new directions for addressing the challenges of design research. (b) We offer letting go as a mode of research care that can help both mitigate research harm in the moment and strategically move beyond guilt or “failure” toward reworking design research practice. (c) We illustrate how moving away from the “heroic designer” narrative can help more candidly and honestly report on thorny issues of extractive storytelling and recognition of labor. (d) We offer centering failure as a modest way of engaging design justice, as moments of reflection and critique turn to re-alignment and action. (e) Yet, we also acknowledge limitations and failures of this approach—how individuals are differently positioned as to be able (or not) to take the risks associated with shifting their own design research practice, and how individual actions alone are insufficient to address systemic issues of design research practice. Throughout, we call for challenging success narratives in design research, and underscore the need for systemic changes in design research practice.

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