

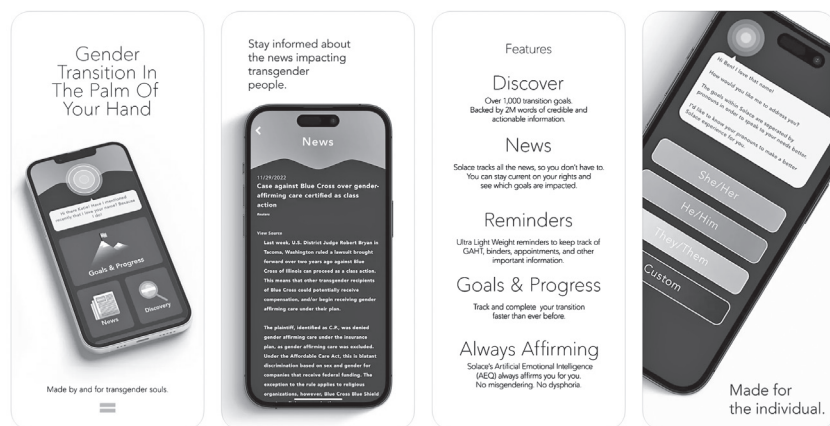
Introduction

Solace, a gender transition resource app created in 2019¹ by a transgender² woman in the US, is an example of what in this book I call a “trans technology”—a technology (a tool that extends the boundaries of what people can do) that helps address some of the needs or challenges faced by trans people and communities. Solace (see figure I.1) enables its users to create a gender transition to-do list and then provides resources to accomplish those goals. The app gained substantial attention and notoriety when its leadership announced in 2021 that they had received venture capital funding. Solace’s influx of funding shifted the app to a for-profit model, monetizing the user base via premium fees and a subtle form of advertising that prioritized information from strategic partners. This new version of the app stood in stark contrast to the realities faced by many trans people, who struggle to access basic resources like housing and health care.³ The app also stood in contrast to trans people’s historically strong sense of community and reliance on mutual aid: Solace encourages its users to transition in isolation, for it

1. Solace seems to have been quietly sunsetted by its creator as I was finalizing this manuscript in 2024. Although it is still available in the Apple and Google app stores at the time of this writing, Solace’s website and social media presence have disappeared, and the app was last updated in 2022.

2. In this book, by “transgender” I mean anyone whose current gender is different than their gender assigned at birth. This definition explicitly includes nonbinary trans people. I use “trans” as an abbreviation for transgender from here forward. I note that language changes rapidly, especially that related to gender, and many of the terms used in this book will seem outdated to readers in the future.

3. For instance, 30 percent of US trans people have been homeless, and roughly one-fourth refrain from seeing a health care provider because of the cost or fear of mistreatment (James et al. 2024); these numbers are typically higher for trans people of color (James et al. 2016).

**Figure 1.1**

“Made for the individual.” Solace gender transition and resource app. Screenshot from the Apple App Store by the author, 2023.

does not include social or community elements.⁴ Yet at its peak Solace had tens of thousands of users, and it was clearly important for a large group of trans people—perhaps isolated people who had not yet made their transition public or who had no local trans community.

Solace’s interface and features reflect the values and experiences of its creator—a college-educated white trans woman with technical skills who views gender transition as an individual, rather than community-based, process. On the one hand, the fact that Solace’s founder created and gathered funding for an app that allowed many others to mirror her own solitary transition experience can be seen as empowering. But at the same time, the design may not fully represent the needs and desires of the larger trans population, particularly trans people of color, those facing economic precarity, and others whose identities sit at the intersection of multiple forms of marginalization. I begin here with Solace not because it is a trans technology success story or a representative exemplar of trans technology. In fact, Solace is quite different from most trans technologies, in both its funding model and its individualist orientation. But it is representative of trans technologies in one way: Solace

4. When I refer to mutual aid, I use Dean Spade’s (2020) definition: “collective coordination to meet each other’s needs, usually from an awareness that the systems we have in place are not going to meet them.”

highlights the complexities of technology designed specifically *for*—but not always *by* or *with*—trans people. Solace is the tip of the iceberg of trans technology—a visible part of the much larger world of technologies designed for, adapted to, or used by trans communities to improve their lives. In this book, I explore the world of trans technologies.

I come to the world of trans technology not as an outsider, but as someone who could have benefited greatly from technological support for my own gender transition. When I first decided to get top surgery in 2010, I had no idea how to find information and resources.⁵ I specifically wanted to see photos of post-op patients from different surgeons to help me decide which surgeon to go to. I did Internet searches for surgeons and came across the name of a local surgeon who supposedly had experience conducting top surgery. However, I could not find any post-op photos of the chests of people he had operated on, and when I asked him for examples, he did not have any to share. I tried to register for Transbucket, an online trans surgery photo-sharing site, so I could look at post-op photos of trans people who had gone to various surgeons. But my Transbucket account was not approved. Perhaps this was because I was not sure I was trans at the time, I had not yet changed my name, and I had not yet started hormones. I knew that the resource—that trans technology—was there, but I could not access it.

Instead, I asked around to a few friends in the local trans and queer community. One friend brushed me off; he had little to say except “you should do research, and ask people in the community for advice.” He did not seem to realize that that was exactly what I was trying to do with him—he was the person in the community I was asking for advice. I saw his post-op chest when, as the temporary drummer for our band, he took his shirt off at practice and at our first show. He had had a procedure that involved no scars, a procedure not available to me given my body type. Another friend had had double incision surgery and offered to show me their scars. After a gathering at my house, we went up to my bedroom and they awkwardly removed their shirt to show the visible pink scars on their pale chest, scars that I realized I would be happy to one day have.

Both of these friends had gone to the same surgeon—one of the well-known ones on the East Coast—and both recommended her, but she was

5. “Top surgery” refers to a double mastectomy, a chest-masculinization procedure that many trans men and transmasculine and nonbinary people undergo.

expensive and not local to me. I did not know then just how bad a mistake it would be to go to a lesser-known surgeon who shared no post-op photographs of his work.⁶ My chest did not end up looking like either of my friends', nor any of the photos that I eventually saw online when I finally got access to Transbucket with my new name and email address. My surgeon, it turns out, did not have the expertise he claimed. He removed tissue haphazardly and stitched me up carelessly. Five years later, after doing exhaustive research online using sites like Transbucket and Facebook groups, I went to one of the big-name top surgeons near the ocean to get my revision. I was still paying off the loans I had taken out for the first surgery.

When I got my first trans surgery, I was already part of a trans and queer community, but it was not enough. I could not find the information I so desperately needed just by asking the two post-op people I happened to know. I needed a much larger pool of information and experiences—resources that are most developed and most accessible online, where many people use digital technology to join together and share resources. In other words, I needed both technology and community. I posit that trans technologies—like online trans support and information communities—are most powerful when they join technology and community together.

In 2010 and 2011, I was part of a “transition cohort.” Here, I mean “transition” in two senses: we were a group of people transitioning gender, but also, the broader world was in a moment of social and technological transition. At this time, the Internet was mature and there was a (limited) set of online trans resources available, but the close-knit offline support groups that had existed years earlier were less available than they had been, and the wide range of digital trans technologies that exist today had not yet emerged. During the research I conducted for this book, after I had interviewed over fifty creators of trans technology, it struck me that the vast majority of the trans technologies I discuss in this book did not exist when I was transitioning. This absence made a material impact on me—I was affected physically, emotionally, and financially by this technological lack when I settled for a shoddy surgeon because I did not have the tools or resources to make an informed decision. Lack of access to trans

6. The number and geographic spread of surgeons who perform gender-affirming procedures have greatly improved over time, so trans patients are now more likely to find a competent surgeon in their area. Yet many other care barriers remain.

technologies must have also hindered many others who transitioned before me and along similar timelines.

How would things have been different if I had had access to these forms of technology-mediated support? A decade after my first top surgery, Mod Club was launched—a website that offers surgery photos for multiple different surgeons and an online community full of people like me. If I had transitioned nine years later, I could have joined Trans Peer Network, a trans online community on Discord, and discussed my surgery decisions with other people in similar situations. When I began my transition, Trans Lifeline, the peer support hotline, would not be founded for several more years. Transition apps like TRACE would not be created until over a decade later. There were no online maps of trans-inclusive health care providers. I could not track my hormone dosages via apps like ShotTraX, launched eight years later. Mutual aid networks did not yet exist in the way they do today, with technology (particularly social media) extending people's reach far beyond their local in-person networks. Instead, I took out personal loans and extra student loans to pay for my surgery (this was possible for me as a relatively privileged person, but the loans still took over ten years to pay back; many trans people have far less access to institutional credit). The only tool that I had was Google search—and that was how I found the surgeon who botched my first top surgery. The trans technologies I discuss in this book are actively helping many trans people, and I wish they had been available to me early in my transition and to others who needed them before they existed.

This examination of the world of trans technology shows what happens when technological innovation seeks to redress a social problem—society's failure to provide for, or its active mistreatment of, a marginalized group. Typically, new technologies are created to solve problems that their creators see in the world. A can opener responds to the need to get to food that is sealed in cans, and Google Maps was created to help people find their way in unfamiliar settings. Most technology responds to fairly mundane problems like these—problems that are rarely critically related to their creators' identities and life chances. With trans technology, though, technological innovations are frequently created in direct response to the oppressive conditions trans people face in the social, legal, and medical spheres: transphobia, violence, antitrans legislation, difficulty identifying supportive resources, and lack of access to medical care. Because these common trans experiences are not ones that many mainstream technology developers share, trans people

often must create our own technologies to meet our needs. Trans-made and trans-centered technologies and the design processes that brought them to life can illuminate what is needed for truly meaningful technological inclusion. What we learn from studying the world of trans technologies can inform inclusive design for other marginalized individuals and communities in the broader world of technology design.

This book looks at trans technologies: apps, games, health resources, supplies, art, and other types of technology designed or adapted to help address some of the challenges transgender people face in the world and to create spaces for trans communities and individuals. My original interest was in digital technologies like those I mentioned above (Transbucket, TRACE, ShotTraX). However, when I asked creators of trans technologies (often, but not always, trans people themselves) what they would classify as trans technologies, they offered answers that went beyond apps and digital tools, and sometimes these answers fit uneasily into the category of technology as I had conceived of it. Other people I spoke to resisted or were ambivalent about the very idea of a trans technology and were reluctant to classify their creations under that heading. This book attempts to do justice to the wide range of ideas and experiences of technology that interviewees shared with me. *Trans Technologies* seeks to illuminate the broad landscape of trans technology, the design processes that produced the trans technologies in this book, and the ways trans people rely on technology and community to meet their most basic needs and challenges. The stories I report here about how and why trans technologies were created, in often-precarious conditions and in an increasingly antitrans political moment, show why trans technology matters.

What Is Technology? What Is Trans Technology?

While I was recruiting trans tech creators to interview for this research, I found myself confronted with a definitional question: What is (and is not) “technology”? In conceiving this project, I had originally thought mostly about apps and websites—digital technologies. But things like prostheses, supplies, and medical interventions are incredibly important technologies for trans people. Where should I draw the line? I struggled to find or formulate a clear definition of technology for quite a while. It was not until my interview with trans studies founder and digital performance artist Alluc-quère Rosanne “Sandy” Stone that I heard a definition that reflected the ways

I had been thinking of and bounding the category of technology. During our interview, Stone casually stated the simple, elegant definition of technology that I had been searching for: “*Technology is anything that extends your agency.*” Stone’s definition draws from media scholar Marshall McLuhan’s (1964) definition of technology as “any extension of ourselves.” To me, Stone’s wording is a particularly useful way of thinking about technology in relation to transness, because trans people and communities need and seek out ways to extend their agency to address the challenges that they face in everyday life. For example, a transition app extends a trans person’s agency by enabling them to track aspects of themselves (moods, physical changes, etc.) that help them better understand their changing body and self; a virtual reality (VR) system provides realistic access to trans experiences and stories, giving a questioning trans person the agency to explore new aspects of their identity.

Transness and technology are deeply interconnected (Shapiro 2015). The trans experience is, by definition, technologically mediated: whether one’s trans experience involves medical technologies like hormones and surgeries (Gill-Peterson 2014), appearance-changing technologies like makeup and clothing, or digital technologies like transition apps that record gender changes, trans experiences always in some way involve using tools to extend one’s agency. In our conversation, trans media scholar Cáel Keegan described technologies as “ways of extending the capacity of the human body” and stated that “transness is already constantly demonstrating that. What we think the human body is capable of, and what it’s actually capable of, are two different things.” As Keegan makes clear, gender transition necessarily involves extending one’s agency beyond biological and social barriers using technology.

If we define technology as an extension of the self and the self’s agency, what then, is *trans* technology? Is it any technology a trans person uses? Under Stone’s definition, almost any tool could be considered a technology, including a can opener or Google Maps. Are these trans technologies because trans people use them to open cans or navigate new places? Not by either of my definitions of trans technology. I offer two interlinked definitions that, taken together, define trans technology.⁷ First, and most pragmatically, *trans technologies are technologies built or adapted to address the specific concerns and*

7. These definitions are addressed in detail in chapter 1.

needs of trans people and communities. By this definition, a can opener and Google Maps are not trans technologies, because while trans people do use can openers and Google Maps, these tools are not specially adapted to the unique needs and challenges of the trans community.⁸ Second, and more theoretically, *trans technologies are technologies that embody or support themes or characteristics of transness*—such as mutability, change, crossing, and new worlds and possibilities. The plasticity and volatility at the heart of transness as a category and concept inform and shape the categorical boundaries of trans technology. This second definition is capacious; it is by this definition that the games and art discussed in this book fall under the umbrella of trans technology. By this definition, too, can openers and Google Maps are not trans technologies, for they do not push the boundaries of what technology is or can do, or focus on change, or enable people to explore their identities in new ways.

Why two definitions of trans technology? Stone's further discussion of her definition of technology points toward this complexity and duality: "I'm inclined to say that technology, at this point in our evolution as a culture, as a species: technology is whatever you say it is. You can talk about any discourse as a technology, if you look at it right. So, in a way that makes things simpler—and of course, in a way it makes them horribly complex, but I'll take the simpler." Ultimately, I decided who to interview for this research and what technologies to include in the book, and so in one way, in this book, technology is what I say it is. But my view of technology evolved and shifted as I talked with each trans tech creator, and my definitions of trans technology were ultimately impacted by each of the people I interviewed. So perhaps in the end, we might say that trans technology is whatever a trans person using or creating it says it is—whatever technology addresses their unique trans needs and challenges, aligns with their changing and complex identity and body, and to some extent just *feels trans* to them.

8. When I write about the "trans community," I do not mean to imply that there is only one trans community. In reality, there are many different trans communities both online and in the physical world that coalesce based on identities, locations, interests, and other factors and do not have strict boundaries. Further, community itself is a fuzzy concept that is not easily delineated (Bruckman 2022; Plett 2023). While referring to the trans "population" might be more precise, I keep the "community" language because I learned in this research how community is vitally important to trans technology creation and use.

Trans Technology Design: Care, Ambivalence, and Marginalization

This work is grounded in in-depth interviews with creators of more than a hundred trans technologies (listed in Appendix A, along with the estimated time ranges each was active), conducted in 2021 and 2022, aimed at exploring the current and past landscape of trans technologies. I examined how these technologies were envisioned and designed, looked for areas for future innovation, and considered what it means for a technology to be a trans technology by asking interviewees what trans technology means to them. Because I interviewed *creators* rather than *users* of trans technologies, this work primarily provides a backstage rather than a frontstage view. I complement this view by drawing from years of my own and others' research on trans experiences using technologies, along with my own trans technology use.

I call this group of interviewees “trans tech creators,” but I do not mean that all of them were necessarily trans themselves—I mean that they were creators of trans technology. While 80 percent of the creators in my study were trans and/or nonbinary, some were cisgender.⁹ It is also important to note that not all the people who I would categorize as trans tech creators would necessarily use this label for themselves. Indeed, some were ambivalent about the idea of trans technology, and a few were resistant to it. Most participants in this research explicitly wanted to be identified rather than anonymous, so I use their full names in this book, with their permission. Other participants requested that I use first names only, or pseudonyms, or wanted to remain anonymous. I report names based on participants' wishes in every case, except for a few instances where I anonymize to avoid publicly critiquing an individual.

This book is written for anyone who feels that they cannot fit into a box or that they inhabit multiple contrasting truths at the same time, whether related to identity, gender, scholarly discipline, or something else entirely. My primary (though not only) disciplinary audiences are human-computer interaction (HCI)/social computing and trans studies (both traditional and applied), with some chapters (e.g., chapters 2 and 4) and arguments likely speaking more to the former and some (e.g., chapters 1 and 5) to the latter. The book is also written for nonacademics interested in trans identity,

9. “Cisgender” (or “cis” for short) means that a person's current gender is the same as that assigned at birth.

technology, social justice, and the intersections between them. I hope that *Trans Technologies* will speak to each of these audiences.

I study technology to learn more about transness, and trans identity to understand more about technology. Most importantly, I examine the spots where technology and transness meet because that is where vital tensions arise surrounding what is created and by whom. One of my primary arguments in this book is about the tensions between community-oriented and more individualist trans technology creation. Trans technology design processes are often deeply personal and focus on the technology creator's needs and desires; they are often solutions to a problem that the creator faces. Trans technology design can therefore be empowering, because technology creators have agency to create the tools they themselves need to navigate the world. But when larger trans communities are not involved in design processes (as with Solace, the app I opened this introduction with), it can lead to overly individualistic design that speaks primarily to the needs of privileged trans people—that is, those who have the skills and resources to create technology, who are more likely to be white and well educated—rather than to the needs of the larger community of multiply marginalized trans people.

I hope that *Trans Technologies* can help to address this problem—that it can itself serve as a kind of trans technology, one that attunes trans tech creators to the needs of the larger community of trans people. The book thus articulates which trans needs and challenges are currently being addressed by technology and which ones still need to be addressed. By highlighting the areas where innovation is still needed, I hope that the book can help to prompt positive social change. Identifying how trans technologies sometimes better serve the more privileged members of the trans population helps us understand how to address these limitations. By describing and drawing from past and current innovations in the trans technology space, I show how we can innovate in the future in ways that can improve trans people's lives.

I also develop an understanding of what trans technology means and what the future of trans technologies might look like—a future that is, I hope, grounded in community articulations and experiences. As digital trans studies scholars like Cassius Adair, Alex Ahmed, micha cárdenas, Tee Chuan-romanee, Avery Dame-Griff, Michael Ann DeVito, Whit Pow, K.J. Rawson, Sandy Stone, and others have demonstrated, trans technology is all around us, and looking closely at trans technology can help us learn what happens when technology design processes have deeply personal implications.

I argue here that **trans technologies make visible and unite two threads: care and ambivalence.** First, trans technology is a way to care for one's self and one's community—a form of what Hil Malatino (2020) calls *trans care*, the innovative and inventive ways that trans people show up for each other when society and family fail them. There is a long history of work on care more broadly. According to Bernice Fisher and Joan Tronto (2003), care involves “everything that we do to maintain, continue, and repair our ‘world’ so that we can live in it as well as possible,” a world that includes “our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web.” Care as a concept inherently contains within itself a duality or ambivalence: it is at the same time both a “warm pleasant affection” and a type of gendered and racialized labor that disproportionately falls on women (Puig de la Bellacasa 2017), gender minorities (Aizura and Malatino 2019), and people of color (Duffy 2011). Care work is undervalued by capitalism, as it has historically been considered women's work and thus unproductive (Care Collective et al. 2020), but capitalism relies on it: capitalist systems typically disregard people's well-being, which manifests in their refusal to provide social services, and care work must fill in the gaps (Nadasen 2023; Piepzna-Samarasinha 2018). For instance, in trans contexts, lack of access to health care and surgical after-care leaves many trans people reliant on community members for care (Malatino 2020). Rather than just traditional care work—care that fills the gaps left by society—we need radical care, care that seeks to change the system that both demands and undervalues it: “alternative and transformative care practices emerging from and connected to social movement organizing” (Nadasen 2023). Trans care, then, must not only aim to meet immediate needs but also seek to change the systems that continually produce those needs while refusing to meet them.

In technological contexts, care takes many forms. For instance, personal information management technologies can be used both for self-care and as a way of caring for others by sharing one's information with them (Cushing 2023). Technological care can also manifest as what Cynthia Bennett and colleagues (2020) call the care work of access (the ways that people collaboratively complete technological tasks by attending to each other's access needs) or in the ways that participants in technology-focused spaces mutually care for each other as a form of community maintenance (Toombs, Bardzell, and Bardzell 2015). I show here another facet of technological care: technology creators can practice care for others by creating technology that helps users

meet their needs. Care work, while potentially transformative, often becomes invisible, which leads to overburdening; it also risks disrupting the autonomy of care recipients (Toombs et al. 2018). These are considerations that trans technologies demonstrating trans care must take seriously.

What happens when we combine technological care with trans care? If, as María Puig de la Bellacasa (2011) argues, care involves a “commitment to neglected things,” we can consider trans people, often neglected by mainstream society and social services, as deserving recipients of commitment and care. Trans technologies are one way of providing this care. Trans care, as a utopian care ethic, has a long history of being expressed both in physical spaces and via technological means (e.g., newsletters, listservs, transition crowdfunding) (Malatino 2020). As this book shows, the creation of trans technology can be a form of what I call *technological trans care*: trans people (and sometimes cisgender allies) creating innovative technological mechanisms to address the needs that they and their communities face in the world. Trans care draws from the disability justice concept of care webs, in which disabled people reciprocally care for each other (Piepzna-Samarasinha 2018). But trans technology’s one-to-many distributive nature, while it may hinder reciprocity, enables technological trans care to reach wide audiences and extend far beyond its creator’s immediate networks.

Trans technologies can thus be seen as “care structures,” which Andre Cavalcante (2018) describes as “invisible” structures, “hidden in the design and functionality of technology,” that are “rooted in human creativity and careful concern.” As Cavalcante’s definition indicates, care goes *into* making trans technology and then later comes *out of* the technology in its profound impacts on its users. Note here the dual structure of care; this duality is another form of ambivalence. As Puig de la Bellacasa (2011) contends, “Transforming things into matters of care is a way of relating to them, of inevitably becoming affected by them, and of modifying their potential to affect others.” This is borne out in the relation of trans tech creators to their creations: creators are personally affected by their own technological care practices (as many trans technologies are created to address a need the creator has themselves experienced), and at the same time, they affect other users of their technologies via those technological care practices. Digital technologies can enable people to care for people they do not know and may never meet (Care Collective et al. 2020). What, then, is the creator’s responsibility toward those others affected by the trans technologies

they create? This is a difficult question, for care takes different forms in each context (Puig de la Bellacasa 2011). In many trans contexts, creating technology to address trans needs and challenges is an important way to care for others, as I show in the examples throughout this book. Yet trans technological care work is also necessarily limited (and limiting), for care requires going beyond technology design, and even beyond technology deployment; it also involves long-term sustainable technology maintenance, which requires substantial time and effort—things that trans tech creators often cannot provide.

Trans technology thus encodes and makes apparent the ambivalences that permeate trans communities and trans technology creation. The word “ambivalence” for me has a peculiarly trans quality to it. I distinctly remember learning the word when I was thirteen and how it so meaningfully captured my own feelings at the time about my gender and sexuality. I was drawn to the word partly because of the disconnect between what it seems to mean at first glance and what it actually means. On the surface, “ambivalence” seems to mean basically “uncertainty” or “unsureness.” While uncertainty and unsureness can be part of ambivalence, I think of ambivalence as involving two or more distant (maybe opposite) poles between which a person wavers and that they contemplate simultaneously. The word embodies a sense that multiple opposing things can be true at the same time. For example, as a thirteen-year-old, I was female, yet I had a different (secret, future) gender too—one that I would not understand for many more years. I felt pulled back and forth between the two without really understanding what was happening. I did not feel in-between; I felt multiple. I think ambivalence captures multiplicity well—and the complexity of having two or more competing orientations simultaneously.

Ambivalence, as feminist theorist Clare Hemmings (2018) describes, enables us to embrace complexities and contradictions in research about gender, sexuality, and race: “In imagining that we know how to ameliorate gendered, racial, and sexual inequalities, or indeed what gender, race, and sexuality are, it is easy to miss the profound ambivalence about these terms and the inequalities or pleasures that cluster around them.” In research about gender and technology there is never only one truth, and imagining a simple orientation toward these phenomena flattens people’s experiences. Hemmings (2018) argues that ambivalence is “fundamental to both the present and the past” and that researchers must embrace uncertainty and resist

the urge to resolve paradoxes. Instead, as we move toward understanding inequalities, we must let go of certainty and singularity.

It is from this ambivalent stance that I contend with trans technology's many ambivalences. In chapter 1, I explore the ambivalence in thinking about trans technology as both practical and theoretical; in chapter 2, the ambivalence in designing to address individual trans needs when structural inequities remain; in chapter 3, that of designing with privilege and for inclusion; in chapter 4, the ambivalence of designing in isolation and designing for/in/with community; in chapter 5, that of designing for community good within a fundamentally capitalist landscape; and finally, in chapter 6, the ambivalence of technological inclusionism and separatism: Is the future dystopian or utopian, and should future trans technologies integrate into the mainstream or remain separate and alternative? **None of these are binaries or true opposites, and in each case, trans tech creators gave ambivalent answers: they wavered between the two seeming poles, expressing multiple seemingly opposite orientations at once. This embrace of multiple viewpoints that seem to contradict one another does not signal inauthenticity but instead highlights the complexities inherent in designing trans technology.**

Marginalization and Technology

Marginalization plays out both uniquely and familiarly in digital spaces and systems. Digital technologies have always been ambivalent spaces for marginalized groups, as technology can both amplify the inequalities faced by marginalized people¹⁰ and foster connections with others like them, allowing them to explore and affirm their identities, find resources, and engage in activism.

In the days of the early Internet, because people's race and gender were not apparent online, many assumed that the inequities we see in the physical world would not exist in online spaces (Kendall 1998; Nakamura 2002). That techno-optimistic view did not come to be. Instead, as Lisa Nakamura (2002) argues, the view of the Internet as "raceless" created an online world in which whiteness was the default—that is, every person was assumed to be

10. Recently, online platforms have been shown to perpetuate heteronormativity and marginalize LGBTQ+ people and communities through overly restrictive policies that overblock trans and queer content (Haimson et al. 2021, Monea 2023).