

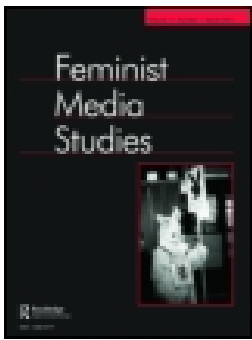
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Tumblr was a trans technology: the meaning, importance, history, and future of trans technologies

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ABSTRACT

Building from previous researchers' conceptions of queer technologies, we consider what it means to be a trans technology. This research study draws from interviews with Tumblr transition bloggers ($n = 20$), along with virtual ethnography, trans theory, and trans technological histories, using Tumblr as a case study to understand how social technologies can meet the needs of trans communities. Tumblr supported trans experiences by enabling users to change over time within a network of similar others, separate from their network of existing connections, and to embody (in a digital space) identities that would eventually become material. Further, before 2018 policy changes banning "adult" content, Tumblr upheld policies and an economic model that allowed erotic content needed for intersectional trans community building. We argue that these aspects made Tumblr a trans technology. We examine themes of temporality, openness, change, separation, realness, intersectionality, and erotics, along with considering social media platforms' policies and economic models, to show how trans technologies can provide meaningful spaces for trans communities.

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Introduction

In 2018, Tumblr fell apart. Tumblr users and researchers had been predicting such a fate as early as 2013 when the site was bought by Yahoo (Marty Fink and Quinn Miller 2014), but Tumblr's policies remained largely intact even as its parent company changed several times from 2013–2018.¹ In December 2018, in a post titled, "A better, more positive Tumblr," the platform announced that it would no longer allow "adult" content (Jeff D'Onofrio 2018). While this policy change pushes away many communities of users, including artists, sex workers (Julia Craven 2018), and fandoms (Casey Fiesler and Brianna Dym 2018), we focus on transgender users, a group disproportionately harmed. Trans people use Tumblr to post content related to their transitions—much of which Tumblr's (notoriously noisy) algorithms classify as "adult." Yet adult content is often educational or medical in gender transition contexts, and enables trans people to gather information and explore identities during transition. Tumblr's ban sent a clear signal to

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trans communities that they were no longer welcome—and leaves it unclear where they will congregate next. To address trans futures, we look to the past, and ask: What made Tumblr such an important and welcoming space for trans communities for so long? In what sense was Tumblr a trans technology, and how can future social technologies learn from it to welcome, and perhaps even design *for*, trans communities? Drawing from trans theory, trans technological histories, and 20 interviews with Tumblr transition bloggers, we present Tumblr as a case study to understand how social technologies may meet trans communities' needs.

From the earliest days of bulletin board systems, transgender individuals have used digital communication technologies to communicate, organize, and access key resources (“US TOO” n.d.; Stephen Whittle 1998). Yet, as these technologies increasingly became central to trans life, trans users remained at risk of marginalization and exclusion. Technological systems are almost never designed with trans people in mind, and many exclude or further marginalize them, intentionally or not (Alex A. Ahmed 2018; Oliver L. Haimson and Anna Lauren Hoffmann 2016; Morgan Klaus Scheurman, Stacy M. Branham, and Foad Hamidi 2018). Moreover, transgender content can be seen as contradicting platforms' “family-friendly” public image (Sophia Cecelia Leveque 2017). Thus, it is important to consider how Tumblr, an online social media and blogging site often considered “queer” both by users and researchers, also met transitional and community needs for trans people. Tumblr's features enabled non-normative, fluid, non-linear, and multiple identity presentations, making it queer both in theory and in use by LGBTQ people (Andre Cavalcante 2018; Alexander Cho 2015, Alexander Cho 2017; Fink and Miller 2014; Son Vivienne 2017). To what extent was Tumblr also a *trans* technology?

Tumblr allowed trans users the changeability, network separation, and identity realness, along with the queer aspects of multiplicity, fluidity, and ambiguity, needed for gender transition. A trans technology enables trans experiences in these ways, but must go beyond that. It also must uphold policies and an economic model that embrace adult or erotic content—an integral part of transition and intersectional community building for many trans bloggers—without characterizing it as pornographic and removing it. Until 2018, Tumblr's policies allowed adult content, and its economic model seemed to flow sufficiently below the radar of its parent company to function non-invasively. After 2018's policy changes, though the site is still used by many trans people, we would no longer consider Tumblr a trans technology—thus the use of past tense in this article's title and throughout. To understand what it means to truly be a trans technology, we explore themes of *temporality*, *openness*, *change*, *separation*, *realness*, *intersectionality*, and *erotics*. We engage with issues of online platforms' policies and political economies throughout.

Research site and methods

Tumblr transition blogs allowed people to document social, medical, and legal aspects of transitioning from one gender to another through sharing text, photo, video, and multimedia content. We extend existing scholarship on LGBTQ blogging (Cavalcante 2018; Cho 2015; Zahari Richter 2019) to further understand trans online identities in flux.

We interviewed 20 English-speaking Tumblr transition bloggers—ten trans women, seven trans men, and three non-binary trans people—from racially diverse backgrounds. To find interviewees, we identified transition blogs on Tumblr by searching for trans and

transition-related tags, and then searching for additional blogs using relevant tags that emerged within this initial sample. We then contacted a subset of bloggers via Tumblr's messaging system. Interviews were conducted via each participant's preferred method of video chat or phone call, lasting on average 60 minutes. Interviews were audio-recorded and transcribed for data analysis. This research was approved by University of California, Irvine's Institutional Review Board.

We analyzed interview data using an inductive open-coding approach, allowing themes to emerge from the data (Anselm Strauss and Juliet M. Corbin 1998). We coded all data using line-by-line analysis, then conducted axial coding to organize and refine codes and themes and understand how they connected to each other (Strauss and Corbin 1998). This research is part of a larger project using this dataset (Oliver L. Haimson 2018a), and the codes discussed are a subset of the project's full codebook.

Our methodologies include elements of what Christine Hine (2000) would call "virtual ethnography," as we consider Internet space both an artifact and a site of community. In that this article uses interviews, document analysis and consideration of media, it studies digital technologies as much as the people who use them. We explore how Internet technologies and site policies become entangled with other technologies of gender transition such as make-up, hormone replacement therapy, and linguistic identifiers (e.g., names, pronouns) and together, sometimes, become trans technologies.

Trans technological histories

In this section we explore *temporality* by locating Tumblr within a longer lineage of transgender presences online and intentional other trans technologies. From the earliest commercial platforms onward, transgender content has occupied a precarious position due to its proximity to the "adult." Afraid institutions would limit the network's reach, Usenet system administrators often obscured or restricted adult and LGBTQ content, such as by using the obscure acronym MOTSS (Members Of The Same Sex) for the gay-specific newsgroup *soc.motss*, or refusing to carry "approved" groups like *soc.sex* (leading to the creation of the alt hierarchy) (Bryan Pfaffenberger 2003). Similar concerns led transgender Usenet posters to found *alt.transgendered* in 1992, for fear the recently created *alt.sex.trans* would not be widely propagated (anonymized for review). For example, on CompuServe Information Service (CIS), the transgender-specific area was located within the age-restricted "Human Sexuality Forum." Prior to 1994, America Online prohibited the use of "transvestite" and "transsexual" in public chat names, effectively banning any public transgender discussion space. Users adopted alternative in-group terminology to circumvent the prohibition—a temporary solution. The rule was overturned only after years of direct user advocacy (Leveque 2017).

The rise of the World Wide Web, in contrast, opened new spaces outside of such corporate "walled gardens." With the World Wide Web came a platform that, much like Tumblr, became an unintended trans technology: the homepage. Though largely abandoned as a social platform by the early 2000s, the homepage was the first large-scale format to offer space for identity exploration (Susan Driver 2005; Katherine Walker 2000). During its height, transgender users eagerly embraced the format. While no complete index exists, one GeoCities-based directory indexed at least 2,000 trans-related pages on this hosting service alone. For trans users, the homepage's affordances, especially its grounding in

HTML, allowed them to safely experiment and explore their gender expression (Avery Dame 2016b; Karl Surkan 2003). Users with no other semi-public outlet for their femininity, for example, could fill their homepage with gendered visual markers (e.g., use of gendered colors like pink, or iconography like flowers or cosmetics) in configurations they felt represented them. This is not to suggest that all homepage creators embraced hyper-gendering, but simply that they could. Homepages allowed for infinite self-fashioning, an inverse of the “pleasure of anticipation” early Mosaic users experienced when surfing the web (Thomas Streeter 2010). Instead of imagining what they might see on early homepages (Streeter 2010), trans creators imagined who they might *be*.

Moreover, homepages were highly malleable (due to HTML), allowing users to delete and remake sites as their identities and genders shifted. Unlike many contemporary platforms, homepages did not funnel self-expression into platform-specific input boxes allowing for easy collection and processing of user data. Creators were not required to follow linear progress narratives or follow the file system-esque hierarchical norms of pre-HTTP protocol system Gopher. Instead, sites could grow and change as their creators did—or be deleted if no longer needed. Surkan (2003) chronicled how one trans homepage user, “Zane,” repeatedly deleted and rebuilt his website to match his changing self-identity, leaving behind only a “ghost in the machine” (275).

Yet early hosts such as Geocities attempted to curtail some of this malleability—and thus, some of this technology’s transness—by offering a “standardised and reliable platform” for personal profiles, serving as a precursor for Facebook and other social network platforms (Axel Bruns 2013). GeoCities, like Facebook, would also face legal and user challenges, including a 1998 FTC complaint around its data privacy policies (Rachel Withers 2018), as well as user protest over terms of service changes following the company’s acquisition by Yahoo (Lisa Napoli 1999). From the 2000s onward, GeoCities not only struggled to be profitable but also was gradually eclipsed by platforms combining the appeal of the personal profile with built-in social networking affordances, finally closing in 2009.

Ultimately, Tumblr too may be done in by its inability to reliably turn a profit. Following Yahoo’s announcement of intent to acquire Tumblr, authors highlighted GeoCities’ and Tumblr’s status as hot properties still operating at a loss when Yahoo bought them (Michael J. de la Merced, Nick Bilton, and Nicole Perloth 2013; Andrew Ross Sorkin 2013). Four years later, Tumblr’s continued struggle led a commentator to conclude that “running a platform for culture creation is, increasingly, a charity operation undertaken by larger companies” (Brian Feldman 2017). Financial issues no doubt contributed to Tumblr’s decision to prohibit “adult” content, which may have driven off potential advertisers—a concern raised when Yahoo acquired the platform (de la Merced, Bilton, and Perloth 2013; Sorkin 2013). Yahoo’s concerns appear to have had merit. Even prior to 2018’s ban, Tumblr had implemented platform changes that restricted access to LGBTQ content when tagged as “adult” (Cavalcante 2018). While for trans users this did reduce the possibly exploitative adult material in tags like #transgender—a reason users chose alternatives like #trans and #trans* (Avery Dame 2016a)—these changes also punished those, such as sex workers and artists who produce NSFW (not safe for work) content, who relied on Tumblr to promote their work (Craven 2018).

As these examples show, corporate platforms’ emphasis on profitability and shareholder-friendly monetization will put marginalized users at risk unless the platform is, by

design, interested and invested in their needs. Otherwise, marginalized users will remain a contingent presence. While years of cultural and technological shifts lie between America Online's initial ban on the words "transvestite" and "transsexual" and Tumblr's ban on "female-presenting nipples" (D'Onofrio 2018), the core concerns remain: that trans and queer content would increase Tumblr's risk of legal action under SESTA/FOSTA and offend platforms' (and advertisers') ideal demographic, the cultural mainstream. Thus, though Tumblr's features and culture were designed to uniquely enable trans experiences—as we will describe next—its economic prioritizations and resulting policy decisions were not.

Tumblr as a space for meaningful change, separate community, and real identity presentation

In this section we examine themes of *openness*, *change*, *separation*, and *realness* to describe commonalities in how transition bloggers perceived Tumblr, and ways that Tumblr enabled meaningful trans experiences on the site. Participants described Tumblr enabling trans experiences in three ways: 1) transition blogs portrayed *change* over time through documenting gender transition; 2) Tumblr communities of similar others were *separate* from existing or everyday networks during gender transition; and 3) Tumblr provided a digital space to present new identities that would eventually become *real* in a material, embodied sense.

Participants characterized Tumblr as an open space. By *openness*, we mean a safe and comfortable place where people could reveal sensitive information, be understood, and tell secrets. As Amos² described, "*Tumblr is more open to emotional expression.*" Further demonstrating this theme, Alexia said,

It was relieving to acknowledge ... you know when you have a secret and you're not supposed to tell anyone and all you can do is look at people and you're like chanting, "I'm a woman! Let me talk about this!" ... that's ... how Tumblr helps me. I have this thing I wanted everyone to know, but I couldn't tell anyone. But then, I found a place where I'm like, I can tell people here. And people started telling me back ...

As evidenced by Alexia's quote, through disclosing personal information on Tumblr, people became part of a community of similar others who told secrets back and forth. People's perceptions of Tumblr, and of their particular community on the site, was as a place where disclosing personal information was possible and acceptable, which allowed them to feel understood and accepted.

Bloggers considered their Tumblr networks open-minded, non-judgmental, and aligned with their political beliefs, perceiving Tumblr as open, safe, and comfortable. For Andre, Tumblr was

the most open and freeing place ... Specifically [my transition blog] ... is where I feel like I can post anything ... pictures, trans-related, weight-loss related, whatever ... that is my open place, that's my safe place ... because no one, most people that I know don't have Tumblrs, or if they do, they generally don't find that one.

Andre's openness and safeness related to network *separation*: more important than who *was* in his Tumblr network was who *was not*. Openness and ability to share personal content was made possible by the fact that people whom Andre knew in the physical world were not there. Alexia expressed similar sentiments, stating that because none of

her friends used Tumblr, she “felt safe and comfortable posting ... pictures of me doing midnight makeup ... Posting my feelings ... and not having that fear that someone’s going to find out.” Particularly early in the transition process, when people were first experimenting with their appearance, Tumblr felt like a safe and open place to present oneself without fear of negative consequences from people they knew. Similarly, many considered Tumblr a place to gather information about how to transition and how to live as one’s chosen gender (Ahmed 2018; Cavalcante 2018). Such information gathering, which may entail asking “stupid” questions, requires a safe and comfortable space.

Perceptions of Tumblr as a safe space and community enabled meaningful identity change. Jessica described becoming “more secure in my decision to transition because of social media and being able to connect with people who had been through what I was going through, or who were in a similar phase ... ” Tumblr’s anonymity also enabled identity change, as Trystan described:

[I]t’s anonymous, in a way. You only have to be the person that you say you are. You only have to share the information that you want. You could just go on there and reblog stuff, not have a picture, not have anything in your details ... I think it just makes it easier for you to ... shed that skin and be able to just show who you really are.

Tumblr was substantially different from many other social media sites partly because it allowed people to be anonymous/pseudonymous. While many transition bloggers used this anonymity only partially—for example, by sharing identifiable photos but with only a first name—anonymity was important in creating a safe space where people could present as their new gender, which in Trystan’s case, enabled “show[ing] who you really are.” Anonymity was less about being technically anonymous, and more about being separate from the rest of one’s everyday network (Katrin Tiidenberg 2013).

Previous literature often posited Tumblr as a queer space (Cavalcante 2018; Cho 2015, 2017; Fink and Miller 2014; Vivienne 2017), and interviewees in this study described it as being queer in some senses. The site allowed queer communities to form and connect in a way that many others did not. Tumblr was also a queer space in terms of queer theory, which challenges dominant categories and embraces fluidity and ambiguity (Judith Butler 1999). For instance, Tumblr’s lack of clear boundaries and categorization, and the way that communities emerged through tags (Dame 2016a), was decidedly queer.

Tumblr may have been queer in the sense of being open, but openness also caused difficulty for queer/trans people. Participants described feeling that Tumblr was not really designed for queer or trans people, citing trouble with content moderation. For example, content that they considered non-explicit was sometimes flagged as NSFW because it was tagged #ftm (as also found in (Cavalcante 2018)). At the same time, Tumblr offered little aid for trans people distancing themselves from porn blogs that often followed them *en masse*. Blocking unwanted followers was possible; yet, as Eva put it, “Having to block literally hundreds of porn blogs and people like chasers is—definitely one of the things that people ... are the most concerned about. So, while it can create that queer space, it’s ... very open.” In this sense, openness can sometimes take away from the safe and comfortable nature many described. Queerness is different from queer as a gender or sexual identity. While Tumblr’s openness may be queer, this aspect may actually hinder queer and LGBTQ people’s desired experiences on the site. Many harmful Tumblr communities existed and thrived using some of the same features that worked well for LGBTQ communities

(Cavalcante 2018). As a result, many users had to carefully cultivate who interacted with their page, a greater labor for those who are fetishized by some and harassed by others.

Finally, in comparison with an identified social media site like Facebook that demands a performance of authenticity (Haimson and Hoffmann 2016), participants considered Tumblr more *real*, in the sense of requiring less impression management (Erving Goffman 1959). The word “real,” it turns out, meant vastly different things on Tumblr and Facebook. Interviewees described their Facebook networks as “real,” meaning networks that included people from their physical world lives; thus, Facebook required the same self-presentation constraints that came with what participants labeled “real life” networks. On Tumblr, people described feeling that they could present a more “real” self; for Blair, “Tumblr was a place where I could completely be myself.” Eva described how her self-presentations varied:

I feel like [Tumblr] is more representative of who I want to be, so I'd say it's reasonably representative of myself in some ways ... Facebook ... it's a lot more contrived, versus Tumblr, where ... everyone that follows me there ... I know is supportive, so I don't really feel a desire to craft a persona. I just do whatever I feel like.

Eva's Tumblr profile presented the person she was transitioning into, in a community away from her Facebook network, while her Facebook profile tended to represent her current physical appearance. Each could be considered “real” in some sense; yet, Tumblr was the version that felt more representative to Eva. Bloggers displayed identity realness on Tumblr in the process of transitioning into physical and social identities they would one day present to their “real life” networks on Facebook. Jay Prosser (1998) argued that transsexual experiences are not fully accounted for in and often differ from trans subjects described by queer theoretical lenses because transsexual bodies change in real and material ways during gender transition (Janet E. Halley 2006). This materiality also takes place in digital forms, on sites like Tumblr, which enable people to document real change through narrative practices like transition blogs—not only for transsexuals, as Prosser (1998) discussed, but also for those whose bodies and identities change tangibly but who may choose different labels (e.g., transgender, non-binary) and/or medical paths (or lack thereof).

Through this characterization of participants' perceptions of Tumblr as a space, we highlight the meaning attributed to Tumblr and people's experiences with this trans technology. Tumblr served an important societal need by providing a safe space for trans people before, during, and after transition, which was both a meaningful space for change, and a supportive community in which to become real and interact with similar others away from existing, everyday networks.

Intersectional identities, body articulations, and reclamations of the erotic

Transition bloggers used Tumblr to document material experiences of the body and build community around knowledge production about trans bodies. Here we examine two themes: *intersectionality* and *erotics*. Tumblr's recent policy change categorizing nudity as pornographic rather than as community medical and social knowledge may be used to limit trans communities' knowledge production and distribution. This knowledge, which we relate to Audre Lorde's (1984) “Uses of the Erotic,” is a form of power that transition

bloggers, particularly bloggers of color, used to build sub-communities for people with interlocking identities.

Some transition bloggers used Tumblr to expand their physical world identity categories and networks at the intersections of race, gender, and technology. Andre, a Christian trans man of color, described being motivated *“to use my personal experiences to help the community ... my personal experiences may not actually be out in that sphere. Especially as a trans person of color.”* Others mentioned building networks and communities, such as *“connect[ing] with a lot of other trans women of color across the globe.”*

Yet, for trans bloggers with intersecting marginalized identities, Tumblr digital spaces and communities included identity politics tensions similar to those of the 1980’s-1990’s women’s movement (Lisa Duggan and Nan D. Hunter 2006). In both contexts, people of color (POC) frequently experienced intersecting patterns of racism and transphobia not represented within the discourse of either antiracism or feminism (Kimberle Crenshaw 1991).

Trans bloggers expanded Crenshaw’s (1991) concept of intersectionality to include transphobia and racism working together to amplify marginalization of trans POC. Bloggers described providing support for and receiving support from others on Tumblr, often related to another identity (e.g., race or ethnicity) that intersected with their trans identity. In Khalil’s words, *“it helps on Tumblr to have people that both care and understand and also can probably relate.”* Yet, transitioning and building community involved extra work, fewer resources, and more difficult experiences for trans bloggers of color.

Intersections of trans identity, race, and class made transitioning more difficult for trans POC, especially in family settings. Bloggers of color described how their families were less knowledgeable about, and even averse to, medical transition in ways that *“a lot of white people wouldn’t have to deal with.”* Khalil observed that white trans people’s *“parents are quicker to come around ... because with the black community we don’t really talk about identity, or mental illness”* Trystan stated that *“black people are kind of averse to the medical system and ... not wanting to like inject their bodies with things on a weekly basis.”* Class also impacted transition for POC, in that *“typically, white families are doing better than families of color,”* meaning that while many white trans people’s families provided financial transition support, Trystan had to *“find out which loan I have to take out to ... afford surgery.”* Such differences made intersectional supportive spaces necessary.

Building community and finding support was difficult for trans POC because many online and physical trans spaces, were primarily white. As Trystan described,

The experiences ... discussed are really white dominated ... I never felt like ... my intersecting identities were actually being understood in any of those spaces ... I think that race plays a huge role. Being a queer person of color, a trans person of color ... makes it that much harder for you to access things.

Due to these inequities, bloggers of color required spaces where race was central in addition to gender.

Representation and visibility online were important for trans bloggers of color, whose online content often received less attention and support than white trans people’s. Andre stated, *“I know my stuff’s usually going to get less reblogs and less likes than other non-POC trans individuals.”* Similarly, Ellis remarked,

When I look at ... people I follow ... I'm like wow, so many people liked your stuff, so many people viewed your stuff, that's great. Why am I not getting any of those views? ... I think a lot of that has to do with being a person of color.

To address this lack of visibility, some trans POC worked to increase online representation. For example, Amos, a non-binary POC blogger, shared the following:

My motivation for [blogging] was just not seeing enough representation of non-binary people and people of color in general. Most ... who are well known on social media for them transitioning, are attractive and white. Which there is nothing inherently wrong with ... but if that is the only thing you ever see ... I kept looking for somebody of color to see how their scars will fade, because skin is completely different texture and everyone's skin heals differently. So, I couldn't find ... anything that was resembling of me in a queer sense or a color sense.

Amos's move toward building a new sub-community reflects an ethic of queer world-building using trans identity to build ever more specific sub-spheres within the trans Tumblr world. This is what Stefano Harney and Fred Moten (2013) might refer to as "undercommoning," a property of the flexibility both of the Internet and of trans identity's iterative community-building function.

Tumblr's recent policy change dictating what is pornographic may have confused the erotic with the pornographic. In the context of transition blogging, content considered pornographic by Tumblr is often surgery related, which is both medical and educational and only sometimes considered erotic by the trans people posting and viewing it. By censoring such content, Tumblr makes algorithmically informed (uninformed) choices about what "erotic" means and in doing so limits erotic, medical, and/or educational trans knowledge, stripping power from trans online communities. Such decision-making reiterates debates from prior decades about inclusion vs. separatism of non-white feminists within white feminism, and trans inclusion within second wave feminism. For many social media sites, content moderation is contextual and shifts based on controversies and user practices (Tarleton Gillespie 2018). For example, in 2014 Facebook changed its long-standing policy censoring many breastfeeding photos after public outcry (Gillespie 2018). Unfortunately, Tumblr's reliance on poor-performing algorithms to police content (Louise Matsakis 2018), and its seeming ignorance regarding adult content's importance, signal unwillingness to listen to or learn from its users.

For some transition bloggers of color, Tumblr was also a space for reclaiming what might be seen by outsiders as pornographic knowledge. Tumblr's overdetermination of trans narratives as pornographic, and trans bloggers of colors' need for sub-spheres within the broader trans Tumblr, reveal trans POC as reclaiming community, gender, and sexuality from white cisgender ideology. Similar to Lorde's (1984) uses of the erotic, trans bloggers *create* intersectional community through reclaiming the erotic. Amos's quote above spans trans temporalities and connects to a Black feminist intellectual heritage. Amos's critique of "attraction" echoes Lorde's ideas about the erotic as a source of power from which oppressed communities create information about bodies and lives (Lorde 1984). However, Lorde argues, people raised in Western societies are taught to mistake the erotic for the pornographic in a system that defines "good" as profitable—in this instance, as an attractive body legible to wider audiences and from which corporations can profit.

To be profitable under a racist, capitalist system, trans bodies, particularly those of color, are often juxtaposed against white and attractive bodies (Jasbir K. Puar 2015; C. Riley Snorton 2017). Amos described Tumblr as a place to create digital space for trans bodies of color—bodies others might consider unattractive because they are not white and cisgender—and particularly for scars.

Transition bloggers harnessed emotions emanating from trans experiences and performed trans subjectivities through online spaces in ways that reflected foundational trans theory. Susan Stryker's (1994) trans theory of the flesh based in ideologies of monstrosity, a foundational piece for trans studies as an academic discipline, is inextricably linked to trans activism. Stryker wanted to embody, enact, and express a transgender aesthetic, which she argued is accomplished "by replicating our abrupt, often jarring transitions between genders—challenging generic classification with the forms of my words just as my transsexuality challenges the conventions of legitimate gender and my performance in the conference room challenged the boundaries of acceptable academic discourse" (1994, 1). While not all transition bloggers were transsexuals and not all pursued medical or surgical transition paths, each performed trans identity in ways that may be considered disruptive within non-trans digital spaces, replicating what Stryker (1994) described as trans people's jarring, abrupt, and constantly changing experiences. Similar to Stryker's reclamation of the social technology of psychiatric conferences, transition bloggers carved out space online to discuss transgender bodies. Additionally, similar to Stryker's trans activism and aesthetics, Amos distributed digital knowledge about embodied transition and surgical experiences of non-binary POC. Shifting away from Stryker's conception of trans bodies as monstrous, transition bloggers' stories suggest that Tumblr was a space of healing for transitioning and often scarred trans bodies and lives. How do we continue this practice using other social technologies?

Tumblr was a trans technology

We have presented trans technological histories, descriptions of trans experiences on Tumblr, and articulations of intersectional community building through erotic visual content on Tumblr. We now pull our themes of *temporality*, *openness*, *change*, *separation*, *realness*, *intersectionality*, and *erotics* together to argue that Tumblr was a trans technology.

Temporality is fundamental to gender transition. In addition to histories and futures of trans technologies, we must also consider how temporal aspects of personal transition may be embedded in technologies. A linear temporal perspective is often used by oppressive institutions against trans people; more open views of change over time, or a *trans-ing* of time, are critical to making trans lives more liveable (Snorton 2017). Additionally, medical institutions pathologize trans people, assuming every trans person's gender identity is linear and static (Puar 2015; Evan Vipond 2015) and often requiring them to discuss their bodies using certain narratives to "prove" their transness to traverse medical and legal barriers (Prosser 1998; Allucquère Rosanne (Sandy) Stone 1987). The dominant narrative of trans experience is that of "fundamental change"—a separation between pre- and a post- transition experience, and a specific moment when gender "switches"—which for most trans people is false (Amy Billingsley 2015; Stone 1987). These medical practices and narratives often overshadow actual trans experiences (Stone 1987;

Billingsley 2015). The Internet enables trans people to communicate more complex and less normative narratives (Billingsley 2015). A trans technology would—as Tumblr did—enable users to resist prescribed narratives, and to change over time without fixed ways of presenting trans identity, a trans extension of what Cho (2015), describing how non-linear temporalities permeated the site, called Tumblr’s “queer reverb.”

Much work has shown various ways in which Tumblr was a queer space and technology (Cavalcante 2018; Cho 2015, 2017; Fink and Miller 2014; Vivienne 2017). As noted above, many interviewees described their experiences there as “open,” indicating that queerness was associated with *openness*, despite some resulting tensions. Previous research has shown how Tumblr’s features that enabled openness encouraged non-binary gender expression (Abigail Oakley 2016; Vivienne 2017), expression of LGBTQ identities that were confusing to some in other spaces (Cavalcante 2018), and the sharing of intimate content among queer youth of color (Cho 2017).

We argue that in addition to being a queer technology, Tumblr was also a trans technology. To do so, we first outline what it means to be a trans technology, beyond merely a technology used by trans people. Trans is different from queer because, in addition to the multiplicity, fluidity, and ambiguity that accompany queerness, transness involves movement or *change* from one gender to another, and often a temporary *separation* from one’s existing, everyday network (Oliver L. Haimson 2018b). Further, as Prosser (1998), Halley (2006), and Cael M. Keegan (2018) have argued, many trans people require a material and embodied *realness* of the gender they transition into, while queer theory instead emphasizes gender’s social construction and performative nature (e.g., Butler 1999). That is, for some (though certainly not all) trans people, gender transition involves moving from one gender category to another rather than breaking categories down. Many trans people are also queer or view gender in queer ways, so a trans technology must both enable realness in identity expression (as interview participants described Tumblr doing) *and* queerness through features embracing multiplicity, fluidity, and ambiguity.

A trans technology, then, must foreground and make real the ability to change over time, from one identity and gender to another, in a space separate from existing networks of family and friends. Non-digital technologies, such as hormones and medical processes, are a type of trans technology (Julian Gill-Peterson 2014). Micha Cárdenas (2011) showed how virtual reality systems could serve as trans technologies that enabled the crossing of gender and identity boundaries and embodying of multiple realities simultaneously. Social media sites can similarly allow people to change over time and portray multiple real identities during the liminal stage of gender identity, while being part of a community of similar others away from everyday networks (Haimson 2018b). Most social media sites do not do this. *Tumblr unabashedly enabled the realness, change, and network separation, along with the queer aspects of multiplicity, fluidity, and ambiguity, necessary for gender transition.* YouTube shares some of these “trans” aspects of realness and documenting change away from everyday networks (Tobias Raun 2016)—but does not provide “queer” features that embrace multiplicity, fluidity, and ambiguity in identity. Tumblr had both.

Yet, enabling trans experiences is not enough. A trans technology must also allow *erotic* content, which we have shown is vital for *intersectional* community building. All trans people are not the same; each has unique lived experiences based on particular identity facets. Thus, as in Amos’s example above, sharing top surgery photos is important not only to show other

trans people what surgery experiences are like, but to show other POC how their scars may heal. A trans technology must be supported by policies and an economic model that allow content understood by trans people as erotic (which, as we have shown, can also mean medical or surgical), which may be misunderstood by outsiders as pornographic.

Tumblr was a primary space where trans narratives were written—a trans technology where people created transition narratives and embraced liminal transition experiences through online expression in a community of similar others. Transition bloggers did this work of presenting change as a process, rather than a moment, within an online community of similar others, separate from their existing networks elsewhere online (e.g., Facebook) (as also found in (Haimson 2018b)). For transition bloggers, Tumblr was a trans technology for presenting and exploring trans identity. We examine trans technology's characteristics particularly in the context of trans people's experiences, but the characteristics that define it are also relevant for other marginalized communities (e.g., sex workers, immigrants) who experience identity change and multiplicity.

Trans technologies moving forward

We now return to an important question posed at the beginning of this article: how can future social technologies learn from Tumblr to welcome, and perhaps even design *for*, trans communities? An immediate need exists for trans communities no longer welcome on Tumblr; yet, trans technologies must also be designed for many years of trans futures.

Alternatives exist to corporate platforms. In reflecting on trans uses of Tumblr and trans technological histories, we are reminded that technologies like Tumblr are not, in Judy Wajcman's words, the "inevitable result of the application of scientific and technological knowledge," and that "things could be otherwise" (Judy Wajcman 2010, 150). The current economic model of many social media platforms was not inevitable, but the result of deliberate choices (Zeynep Tufekci 2018). Outside of social media, trans individuals have long created alternative resources, from the early trans-specific computer network the United Sisterhood of Transsexual Outreach Organizations ("US TOO" n.d.) to Transbucket (transbucket.com), a photo-sharing site modeled on Photobucket, where individuals can anonymously share surgical results and ask questions.

Archive of Our Own (archiveofourown.org, hereafter AO3) illustrates another response to corporate concerns about "adult" content. Following then-popular journaling platform LiveJournal's mass deletion of accounts listing interests in "adult" content (Declan McCullagh 2007), and several other incidents, AO3 was developed as a nonprofit, non-commercial, fandom-based alternative to corporate platforms and sites (Fiesler and Dym 2018). Casey Fiesler, Shannon Morrison, and Amy Bruckman argue that in its development and design, AO3 represents an example of feminist technology in action, encompassing "feminist values such as agency, inclusivity, diversity, and empowerment" (2016, 2574–75). AO3's development team consistently emphasizes user participation and responsiveness to a variety of viewpoints, while also foregrounding their own investments as fans (Fiesler, Morrison, and Bruckman, 2016). These commitments drove the site's design decisions, from allowing multiple pseudonyms for one account and building in a variety of warning tags and visibility filters, to using intermediary "tag wranglers" to manage the site's complex folksonomy. Such elements will be essential to any future trans technology.

A trans technology must embrace the materiality, multiplicity, fluidity, and ambiguity that lie at the heart of transgender experiences. Tumblr had these elements, yet was not designed for trans people. Further, Tumblr, until 2019 owned by Yahoo, owned by Verizon Media, then sold to WordPress's parent company Automattic, exists in a capitalist system designed to prioritize financial gain (Cavalcante 2018), which means appealing to the cultural mainstream and avoiding adult content. Tumblr is a fascinating case study: a site somewhat accidentally designed with queer and trans features, legible to and used by queer and trans people, that temporarily existed within the capitalist framework of Silicon Valley.

A real trans technology would be designed specifically by and for trans people, outside of capitalist frameworks, with features enabling trans experiences and policies allowing trans content in the service of intersectional community building, regardless of how "pornographic" that content may appear to outsiders. Trans technologies do not need to be social media sites, but may be any sort of technology that accounts for the complexities of trans experiences and aims to solve trans community challenges. A new trans technology—"trans time"—which intentionally incorporates trans temporalities, timelines, tags, moderation, privacy, and networks—is currently in beta (transtime.is). However, projects or technologies maintained by single individuals or small teams are not sustainable in the longer term or at a larger scale—particularly social platforms, which require both technical and content management. Instead, a sustainable model might resemble not only contemporary online examples like AO3, but also smaller, regional organizations that for many years formed the backbone of trans organizing. Building from such examples, we imagine a publicly available technological platform maintained by a cooperatively governed organization.

Adopting a cooperative approach rather than a traditional non-profit model more effectively empowers a trans technology's primary demographic: trans and queer individuals and communities (Rickke Mananzala and Dean Spade 2008). Such an organization, unlike AO3's host, The Organization for Transformative Works, could not be solely user-donation supported, especially given the financial challenges many trans individuals already face. Ideally, long-term sustainability would come via access to a variety of funding streams, such as donations, grants, and sliding-scale memberships. This differentiation (member versus user) is key: users often have limited input into developing and implementing tools they use, while members are part of a larger, decision-making collective where they can exert agency. Cooperative-style governance, with clearly designated access points for member input, would ensure that the technology stays focused on trans members' needs. By detailing the meaning, importance, and history of trans technologies and providing this case study, we hope to inspire paths forward for future trans technologies.

Notes

1. Except for several brief removals and then reinstatements of adult content from search (Gillespie 2018).
2. All participant names are pseudonyms.

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