Material and Experiential Autonomy on Social Media: A Conceptual Framework from Political Philosophy

Journal Title
XX(X):1–15
©The Author(s) 2016
Reprints and permission:
sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/ToBeAssigned
www.sagepub.com/

SAGE

Anonymous

Abstract

User autonomy is a central theme in human-computer interaction (HCI) research. Traditionally, a user's ability to shape their digital experiences and their perception of that ability have been conflated under a generalized ideal of "autonomy." However, social media design can mislead users into believing that they have more or less sway than they actually do. Taking this into account, this article introduces a conceptual framework of autonomy, grounded in diverse political philosophical thought. The framework factors autonomy into two dimensions: users' abilities to shape their online experiences ("material autonomy") and their beliefs in those abilities ("experiential autonomy"). These independently varying dimensions form a 2×2 matrix, offering a precise vocabulary for analyzing how social media features impact user autonomy. The article proposes the *principle of consonance*, which emphasizes aligning material and experiential autonomy through platform design. Finally, it demonstrates the utility of the framework via two social media case studies.

Keywords

autonomy, human-computer interaction, political philosophy, social computing, social media

The challenge of modernity is to live without illusions and without becoming disillusioned.

-Antonio Gramsci, Letters from Prison

Introduction

Social media is an immense sandbox of political structures. Billions of people interact with and within rules, groups, hierarchies, and features implemented not with guns but with code. Not only are increasing proportions of our personal lives lived out on social media, but so are elections, social movements, and revolutions (Wolfsfeld et al. 2013; Kidd and McIntosh 2016; Allcott and Gentzkow 2017). It is not surprising, then, that human-computer interaction (HCI) researchers studying social media have developed strong interests in systems that encourage the flourishing of users' autonomy (Mahar et al. 2018; Kang and Lou 2022; Sahebi and Formosa 2022, inter alia)—preliminarily, the ability to shape the structure of social organizations to which one belongs. Concepts associated with user autonomy—agency, empowerment, control, etc.—are commonplace in HCI design discourse.

Two important axes of autonomy emerge in HCI literature: material ("the user's *material* ability to effect some outcome, manage self-care, etc.") and experiential ("the user's first person experience, sense, or feelings of agency and autonomy"), as articulated by Bennett et al. (2023). Notably, Bennett et al. (2023) observe that the majority of HCI research focuses primarily on *material autonomy*, with fewer studies concentrating solely on *experiential autonomy*. Hardly any studies distinguish between the two. That is, they tend to collapse material and experiential autonomy into one dimension: if a user does not have material

autonomy, then they do not believe that they have it; if they do have material autonomy, then they do believe that they have it. Meanwhile, the few studies that do draw a distinction between these two dimensions of autonomy tend to agree that "in practice in all these cases, material and experiential aspects of agency or autonomy did not diverge." We pick up where Bennett et al. (2023) leave off here: we argue that many documented social media phenomena can be understood "in practice" as cases of divergence (dissonance) between material and experiential autonomy, such as infinitely scrolling (experiential without material) and creating inauthentic content in accordance with online norms (material without experiential). This understanding is useful because it provides a common vocabulary to characterize important aspects of currently unconnected ethnographic expositions (Thomas et al. 2018; Baughan et al. 2022; Mäntymäki et al. 2022, inter alia) and to diagnose and address problems via design. We therefore build upon Bennett et al. (2023)'s aggregative survey toward theory- or framework-building: formalizing definitions of material and experiential autonomy; systematically understanding their causes, effects, and interactions; and generating descriptive explanations and normative recommendations.

Political philosophy provides numerous concepts that give life to our theory-building. From Plato's construction of a just society (Plato et al. 2008 [375 BC]) to Jean-Jacques Rousseau's exegesis of the social contract (Rousseau 2016 [1762]) and Martin Heidegger's examination of metaphysical "homelessness" (Heidegger 1962 [1927]), prominent thinkers have long analyzed what it is about particular sociopolitical structures that cultivates autonomy. Philosophers commonly offer perspectives distinct from those in the empirical social sciences: they interrogate political concepts (such as "autonomy," "justice," "rights")

at a fundamental level, deeply investigate normative questions, and engineer novel concepts to (re)frame our thinking. Political philosophers have paid particular attention to the material and experiential dimensions of autonomy (Horkheimer et al. 2002 [1944]; Marcuse 2013 [1964]; Sartre 2007 [1946], inter alia) when analyzing culture, society, and politics.

In this paper, we leverage ideas across political philosophy to build a theory of autonomy in social media contexts, specifically examining the interaction between autonomy's material and experiential dimensions. By social media, we mean "applications, such as blogs, microblogs like Twitter, social networking sites, or video/image/file sharing platforms" (Fuchs 2021) that provide "digital infrastructures that enable two or more groups to interact" (Srnicek 2017). We begin by organizing political philosophers' views on autonomy under them metaphor of building and repairing structured homes, which highlights the significance of belonging within evolving sociopolitical structures on social media. From this general understanding of autonomy, we motivate its factorization into material and experiential dimensions. We then introduce our autonomy framework: a 2×2 matrix formed by independently varying material autonomy—the possession of and ability to use tools to build and repair one's reality—and experiential autonomy—the belief that one can exercise material autonomy. Our framework accounts not only for cases in which users are aware of lacking or having material tools on social media (consonance); it also explains more nuanced cases in which users' material and experiential autonomy are at odds with one another (dissonance). Using our framework, we propose a design recommendation to target these cases, termed the principle of consonance: social media should be designed to align material and experiential autonomy, minimizing dissonance between the two dimensions. An interesting implication of this principle is that, in some cases, it may be preferable for users to have less rather than more material autonomy as long as they are experientially aware of it (e.g., removing the dislike button could improve user well-being). Ultimately, we demonstrate the explanatory power of our framework and the normative weight of the principle of consonance through two social media case studies.

Autonomy: A First Philosophical Pass

What must flourishing political systems respect and nurture in the people whom they govern? Political philosophers have contemplated this question and its variants for centuries. Many ideas that they have offered in response can be understood as describing *autonomy*. In this section, we formulate autonomy as the ability to contribute toward the building and repair of structured homes. The aforementioned three elements—home, structure, and building and repair—come together to encompass important facets of philosophical writings regarding autonomy, while helping us conceptualize online experiences through tangible metaphors. To be clear, our formulation of autonomy is not the only one to be gleaned from political philosophy; we simply recognize and demonstrate its notable utility for analyzing social media.

Home

A home is a space—physical, virtual, or otherwise—in which people can 'live' with a sense of belonging. That is, the space provides its inhabitants with their basic needs (e.g., the ability to rest and shelter from storms) but also challenges, stimulates, and otherwise develops them in constructive ways. To dwell in a home is not merely to occupy it spatially but to belong there (Wheeler 2020). In Heidegger's conception of "Heim" or "being-at-home," a person is at home when they have ontological security—not just physical safety, but a sense of purpose and belonging in the world—and epistemic grounding—an authentic presence in the world (Heidegger 1962 [1927]). A broadly similar notion of home can be found in the works of numerous other philosophers (Weil 1949; bell hooks 2009 [1990]; Casey 1993; Young 2005). The concept of home is central to autonomy because we need adequate homes to govern ourselves and meet higher needs like love, esteem, and selfactualization (Maslow 1943).

Homes can vary widely in their composition. A standard Western nuclear family might be a suitable home, but so may non-traditional familial arrangements (Koktvedgaard Zeitzen 2008; Chung and Gale 2009; Shockley et al. 2017). Homes can also vary in size: the smallest homes may house one person (a 'studio'); mid-sized homes may hold several people (a 'family house'); and large homes may provide for entire communities (a school, a church, a nation-state). People can belong to multiple homes of different compositions and sizes. In the context of social media, content consumption spaces like Instagram Reels or one-to-one private interactions with language models such as Snapchat AI can function as one-person homes; private group chats and public but small communities can serve as mid-sized homes; and the largest homes may include entire, mainly self-engaging "worlds" (e.g., academia Twitter/X (Mohammadi et al. 2018)) or large subreddits. The characterization of this diverse range of contexts as "homes" aims to identify an important common feature (i.e., promoting belonging and self-reproduction) rather than to essentialize these contexts as fundamentally similar. We therefore use home as a flexible conceptual tool rather than a rigid label.

Structure

A structured home operates under systems that define shared elements of behavior within the home, such as norms and rules. Structure is positive—in that it sets forth a mode of organization-but also negative-in that it restricts other possible modes of organization. By analogy, solid wood beams can produce a distinctly shaped structure to a home but can also restrict a home from taking on other kinds of shapes. When forming any society, each member needs to forgo some kinds of 'shapes' in favor of a broader structure. For instance, Rousseau conceived of autonomy as self-legislation: citizens joining together to make and follow laws that express their shared conception of the common good (Rousseau 2016 [1762]). In the process, each individual must sacrifice some part of their individuality and conceive of their social membership as essential to their identity (Neuhouser 2011). Indeed, the word autonomy

can be etymologically decomposed as *autos nomos*, or "self(-given) law." This notion of autonomy involving trade-offs is common across political philosophy, particularly in the social contract tradition. Thomas Hobbes famously conceived of unrestrained life before joining the social body as "nasty, brutish, and short" and advocated that individuals subject themselves to a sovereign, forming a collective government or "Leviathan" (Hobbes 1982 [1651]), for greater protection and order. John Locke took a more moderate approach, advocating for the preservation of individual liberties within the state (Locke 2021 [1689]).

Structures can vary widely. Some thinkers envision structures that are not enforced top-down (e.g., by the state (Gramsci 2020 [1971]) with a "monopoly on violence" (Weber 2004 [1919])) but in a bottomup fashion. For instance, Mikhail Bakunin supported a federalist structure, wherein local groups retain autonomy but cooperate through a network of federations to address issues (Bakunin 1990 [1873]). Emma Goldman advocated for voluntary associations in which people come together freely to organize their social and economic lives without centralized control (Goldman 1969 [1910]). These homestructuring discussions are directly related to debates regarding centralized (e.g., Facebook) versus decentralized (e.g., Mastodon) and corporate-based (e.g., Twitter/X) versus comparatively more community-based (e.g., Reddit) platforms (Datta et al. 2010; Seering 2020, inter alia).

Building and Repair

Flourishing homes do not exist *ex nihilo* in the state of nature*—the original state of any society or platform—but must be *built*. If homes are not adequate for the people whom they house, then they are to be *repaired*. On social media, users regularly build and repair homes by adding, altering, and enforcing norms and rules that govern behavior. To affect change, they wield *tools*: equipment (e.g., the like button) or processes (e.g., the formation of online communities) over which users can exert control to build better homes.

Platform employees and executives construct social media platforms as 'worlds': wildernesses that they then populate with features (e.g., the like button) and general rules (e.g., community guidelines). When users enter these 'worlds,' they must work on top of what platforms have provided to build and repair adequate homes. How can and should they go about doing this? John Rawls described the method of "reflective equilibrium" for arriving at a balanced and coherent set of principles: individuals formulate principles and revise them, allowing their intuitions to guide revision and subjecting their intuitions to inquiry (Rawls 1971). Some philosophers have outlined more radical modes for building and repair. Baruch Spinoza suggested that the people have a right to revolt against the sovereign if it no longer works for the common good (Spinoza 1949 [1677]). Karl Marx theorized that such revolutions were part of the natural development (dialectic) of history and led to a succession of better homes (Marx and Engels 1848). In these cases, building and repair may involve dismantling inadequate homes first. For example, Waldman (2022) characterizes social media as "straight spaces" that disproportionately censor queer and nonnormative sexual content, arguing for the redesign of content moderation systems.

How do the notions of home, structure, and building and repair come together to characterize autonomy? Consider some intuitive examples: people who lack access to basic survival resources, are subject to others' complete legal or fiscal control, or are denied voting rights lack autonomy because they cannot contribute to the building and repair of their body, their life, or their nation, respectively. In a similar way, denials of autonomy unfold on social media and threaten users' abilities to contribute to the building and repair of their digital homes. Often, conflicts in the physical world including political revolutions (Wolfsfeld et al. 2013), presidential elections (Allcott and Gentzkow 2017), and social movements (Kidd and McIntosh 2016) transpire on social media, blurring the boundaries between autonomy on-and offline.

Factoring Autonomy

Thus far, we have understood autonomy as contributing to the building and repair of structured homes. Importantly, Bennett et al. (2023) distinguish *material* and *experiential* aspects of autonomy, capturing the intuitive difference between what we *can do* and what we *believe we can do*. Inspired by political philosophers' keen insights into this distinction and its relevance to autonomy, we formalize Bennett et al. (2023)'s preliminary definitions of material and experiential autonomy.

Material Autonomy

To have material autonomy is to possess and be able to use tools to build and repair your structured homes. Note that this ability is independent of whether one actually engages in building and repairing. One way to understand material autonomy is through the lens of disability studies. The Americans with Disabilities Act defines someone with a disability as "a person who has a physical or mental impairment that substantially limits one or more major life activities" (Department of Justice 2020). For instance, imagine a person who relies on a wheelchair facing a set of stairs with no wheelchair-accessible alternative. The combination of their disability and the lack of an accessible route limits their movement from place to place, making it significantly more difficult for them to belong in the space. Hobbes similarly conceives of freedom as the absence of "external impediments to motion" (Hobbes 1982 [1651]), or obstacles to our material engagement in the world.

In the social model of disability, "[I]t is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society" (Union of the Physically Impaired Against Segregation 1976). The structures of homes thus play instrumental roles in turning individual

^{*}Cyberlibertarians like John Barlow hold that ungoverned cyberspace is idyllic (Barlow et al. 1996), mirroring John Locke's state of nature (Locke 2021 [1689]). However, dark realities including algorithmic biases, hate speech, and more (Miller et al. 2022; Waldman 2022, inter alia) undermine such perspectives.

[†]The boundary between having and not having material autonomy is highly contextual, conditioned on a user's specific goals and circumstances.

differences among people into conditions for having or not having material autonomy. On social media, one-size-fitsall design approaches can fail to facilitate the construction of adequate homes for users who do not conform to the platform-wide majority (Feng et al. 2024). For instance, content moderation can be stricter for users whose clothing challenges gender norms, compared to users who violate sexual content guidelines but dress conventionally (Steen et al. 2023). Generic designs align with what Rawls would consider just tools: ones that an impartial individual—behind a "veil of ignorance," which makes them unaware of their own personal characteristics like gender, race, or social status—would select as just (Rawls 1971). Thinkers including Raymond Geuss critique Rawls for neglecting to consider real power configurations by bracketing identity behind a veil (Geuss 2008). They highlight the need for designers to construct tools that address users' specific needs (Díaz and Hecht-Felella 2021; Jhaver et al. 2022, 2023), therefore enabling users to build and repair their structured homes.

Experiential Autonomy

To have experiential autonomy is to believe that you can exercise material autonomy. One way of conceptualizing experiential autonomy is through the concept of ideology: "a consistent integrated pattern of thoughts and beliefs explaining man's attitude towards life and his existence in society" (Lowenstein 1953). What distinguishes ideology from general belief is that it is organized in a systematic way, allowing for explanations of many phenomena and providing recommendations for action. Therefore, one's beliefs about whether one can exercise material autonomy are not arbitrary matters of opinion (e.g., "I prefer chocolate over vanilla"); rather, they are functions of (and actors in) systematically distributed ideas, experiences, and feelings that one encounters in the (digital) world. Much like ideology should not be dismissed as merely "imagined" or "constructed," experiential autonomy should not be considered subsidiary to material autonomy. In both cases—ideology and experiential autonomy—the study of belief is integral to understanding how people situate themselves in and shape the material world. For example, do users believe that they belong to a community or feel alien to it? And do they feel impelled to act or not to act in response?

The Autonomy Matrix

From these two axes of autonomy—material and experiential—there are four quadrants (states of autonomy) that people can experience: both material and experiential autonomy (BOTH quadrant), neither material nor experiential autonomy (NEITHER quadrant), experiential but no material autonomy (EXPERIENTIAL quadrant), and material but no experiential autonomy (MATERIAL quadrant) (see Tab. 1). Importantly, discussions of users in different quadrants are not mutually exclusive: users can be in multiple quadrants at once relative to different parts of their online experience. In addition, each quadrant does not require a total possession or lack of material or experiential autonomy but instead approximates situations in which these dimensions are high or low.

In this section, we explore the causes, effects, and interactions of material and experiential autonomy, providing examples of social media phenomena that exemplify each quadrant. Political philosophers guide our framework by offering instrumental concepts for characterizing and understanding the autonomy matrix.

BOTH Quadrant

To have both material and experiential autonomy is to be able to use tools to build and repair your digital homes and to believe that you have such tools. Community-curated blockbots (Geiger 2016) and blocklists (Jhaver et al. 2018), for example, proactively prevent specific accounts from interacting with subscribing users. These inventions help marginalized groups assert material autonomy to participate in otherwise exclusionary online spaces (Geiger 2016). Software like PolicyKit, which empowers users to author and enact governance procedures on platforms (Zhang et al. 2020), might similarly augment users' material and experiential autonomy by transparently enabling user groups (e.g., Black Twitter) to formalize moderation approaches that suit their community's needs (Seering 2020).

How might having material autonomy bolster experiential autonomy? When users succeed in materially building and repairing homes, they may subjectively evaluate and internalize their successes as evidence of their material autonomy. According to Iris Marion Young, building a home is basic to the emergence of subjective beliefs (Young 2005). Creating something external to oneself, like a social media profile, thus gives rise to inner contemplation: "Can I build a home here in which I can feel that I belong?" (Marx 1844). This subjective evaluation forms the foundation of experiential autonomy, which is strengthened when users have evidence that they can indeed build and repair homes for themselves. Marx can be read as describing people's emergence of experiential autonomy about the material tools that they have to improve society (Marx and Engels 1848, 1846). Numerous other political philosophers discuss this idea while studying the relationship between the mind and the world (Sartre et al. 2022 [1943]; Merleau-Ponty and Smith 1962; Singer 2017; Coate 2018).

How might having experiential autonomy bolster material autonomy? Users' beliefs in their abilities to build and repair homes can help them overcome material obstacles. The "looping effect of human kinds" describes how grouping people into "kinds" shapes their behavior, either reinforcing their categorization or prompting rebellion against it (Hacking 1995). Therefore, endowing individuals with beliefs about themselves (here, by ascribing their identities to "kinds") can ignite material change. For example, Confucius writes that we can break free of categorizations through "as if" rituals, which help us pretend "as if" something that is not presently true is indeed the case (Puett and Gross-Loh 2016). Akin to a self-fulfilling prophecy, a user whose post has been deleted multiple times may become convinced that persistence will pay off, leading them to try posting it again and, perhaps surprisingly, succeed. Lao Tzu's "uncarved block" similarly illustrates how an open mind can lead to greater material success. By remaining flexible in our beliefs rather than whittling them

Autonomy	Material	No Material
Experiential	BOTH: When users successfully build or repair	EXPERIENTIAL: The seamlessness or illusion of
	their homes, they may view these achievements	control offered by many social media features
	as evidence of their material autonomy, boosting	masks users' lack of tools for actualizing
	their confidence to tackle similar challenges.	material change.
No Experiential	MATERIAL: Users might come to accept	NEITHER: Deprivation of tools can lead users to
	conditions that discourage material change,	internalize their lack of resources, limiting their
	believing that difficulty in accessing tools means	beliefs in what they can achieve and narrowing
	that tools are unattainable.	their material possibilities.

Table 1. The autonomy matrix.

down into rigid blocks, we open ourselves up to discovering and exercising tools to actualize our material autonomy (Tzu 2020 [4th century BC]).

NEITHER Quadrant

To have neither material nor experiential autonomy is to be unable to use tools to build and repair your digital homes and to lack the belief that you have such tools. For instance, Venezuelans are aware of the government's manipulation of their content and expression via social media (Arias 2019). As another example, social media support for Syrian refugees surged in 2015 but soon waned due to distress over the intractability of action and fear over terrorism in Europe (Thomas et al. 2018). Marginalized users across the globe also cognize platforms' tendencies to remove their acceptable content while providing insufficient channels for users to appeal against such removals (Myers West 2018; Waldman 2022; Steen et al. 2023).

How might lacking material autonomy undermine experiential autonomy? Features of systems that continuously deprive people of material tools can lead them to internalize, believe in, and at times even justify such deprivation in order to process their experience. In a tradition of thinkers who explored both the material and experiential dimensions of oppression (Du Bois and Marable 2015 [1903]), Frantz Fanon explains that when individuals internalize their subjugation, they can adopt a "psycho-existential complex": the oppressed individual adopts the oppressor's worldview, seeing themselves through the lens of stereotypes and prejudices. As a result, they may come to believe that their lack of material autonomy is not only inevitable but justified, perpetuating their marginalization (Fanon 2023 [1952]). Mark Fisher discusses "capitalist realism," in which capitalism as a material and experiential influence limits the futures that people can imagine (Fisher 2022 [2009]). On social media, the weight of users' inabilities to build and repair their realities can similarly erode any belief in their material autonomy. For instance, after reporting failed to protect queer women across platforms from harassment, many responded by deleting their accounts (Duguay et al. 2020).

How might lacking experiential autonomy undermine material autonomy? Users tend to act within the bounds of what they think they can do; users' material possibilities, then, can become severely narrowed by restricting their beliefs in their abilities. Louis Althusser explored how social structures "interpellate"—that is, recruit or hail—individuals into ideology by turning them into ideological subjects, who

think of their existence, identity, and behavior in terms of the aforementioned social structures. Under Althusser's theory, the way in which one conceives of themselves as beholden to a social structure really makes them beholden. Numerous other thinkers have explored such phenomena (Marcuse 2013 [1964]; Foucault 2023 [1975]; Searle 1995, inter alia). Notably, in Judith Butler's theory of gender performativity, the material practices of gender dichotomies—boys behave and act in one way, girls in another—become material constraints because we think of ourselves as compelled to perform and police gender norms (Butler 1990). By adhering to and thus reinforcing social media norms (e.g., traditional gender roles), users can inadvertently contribute to the development of more restrictive platform rules (e.g., new sexual content guidelines) (Waldman 2022).

EXPERIENTIAL Quadrant

To have experiential autonomy but not material autonomy is to lack tools to build and repair your digital homes but to believe that you have such tools. Many social media users, for example, cultivate attractive self-images online to satisfy a need to belong but are simultaneously addicted to social media, have low self-esteem, and otherwise inhabit inadequate homes (Lee-Won et al. 2014; Andreassen et al. 2017; Casale and Fioravanti 2018). Another compelling example is the infinite scroll, which ostensibly puts users in a position of control (Lupinacci 2021; Baughan et al. 2022) through "the ubiquitous expectation of constant change and instant gratification" (Marek 2023) yet can lead to disassociation (Baughan et al. 2022) and negative social emotions (Holmgren and Coyne 2017), especially without effective tools to manage content consumption (Baughan et al. 2022).

What causes users to believe that they have material autonomy when they in fact do not? Social media platforms are rife with features that bolster users' experiential autonomy by building their trust, confidence, and expectations without providing corresponding tools for them to enact material autonomy. Indeed, HCI researchers have long been interested in how social media platforms install various aspects of experiential autonomy into the user experience, often via "seamless designs" (Inman and Ribes 2019; Mejtoft et al. 2019; Natarajan 2024) like the infinite scroll (Neyman 2017; Woolley and Sharif 2022; Botsman 2022). When features that instill beliefs in users' material autonomy are developed without actualizing those beliefs, users' states of autonomy mirror what cave dwellers experience in Plato's allegory of the cave. Users

are "restrained"—what they experience is not material autonomy but only "shadows flitting across the cavern wall"—yet they believe that they have material autonomy because of the deceptively verisimilar shadows (Plato et al. 2008 [375 BC]).

The Frankfurt School of Critical Theory has developed an influential set of concepts to understand people's experiences of autonomy in a controlled world. "Pseudo-individuality" describes how various cultural technologies such as film (to which we add social media) "promote the development of the individual" while at the same time "no individuation was ever really achieved" (Horkheimer et al. 2002 [1944]). Such pseudo-individuality manifests itself in small and superficial but recognizable differences upon which technologies capitalize (Freud 2015 [1930]; Figlio 2018). Consider the range of hinges that users can leverage to distinguish themselves from the crowd: they can assert their likes, quirks, and interests in ways that give rise to experiential autonomy. But, rather ironically, these expressions can dismantle individuality; a single "like" on Facebook, for example, can fuel efforts at mass psychological persuasion, whereby users' signals allow for the subtle manipulation of their behavior by external parties (Matz et al. 2017). Amidst this covert denial of material autonomy, users can experience what Herbert Marcuse describes as "euphoria in unhappiness": feeling a sense of felicity that births a sense of control, users become further entrenched in the platform's narrow set of afforded possibilities. Swallowed up by their alienated existence, they forget their lack of material autonomy and become "one dimensional men," drained of the capacity to imagine alternatives to their current digital realities (Marcuse 2013 [1964]).

MATERIAL Quadrant

To have material autonomy but not experiential autonomy is to be able to use tools to build and repair your digital homes but to believe that you lack such tools. For content creators, the overwhelming feeling of being surveilled by an imagined audience can promote a culture of "digital blasé" or emotional numbness, limiting their beliefs in their material abilities to post authentic content (Au and Chew 2017). In addition, many viewers hold power to thrill or distress other users with their feedback (Klug et al. 2021; Nicholas 2022; Haug et al. 2024) but often perceive their (dis)likes, comments, and other reactions as insignificant (Brooker and Hawes 2016).

What causes users to believe that they do not have material autonomy when they in fact do? Users can rationalize and accept environmental conditions that disincentivize affecting material change, assuming that challenges to accessing tools indicate the impossibility of obtaining them. One compelling explanation comes from the theory of "learned helplessness": a person believes that they are unable to change a situation such that, even when opportunities are materially available to improve it, they do not engage (Seligman 1972). For example, trying to appease opaque viral-pushing algorithms may fatigue users, leading them not to consider alternative methods for increasing viewership like building stronger online communities (Green 2016; O'Meara 2019). Some philosophers instead explain

this lack of experiential autonomy through a moral lens. Jean-Paul Sartre defined "bad faith" as the abnegation of one's moral responsibility and freedom. He considers the example of a man during World War II choosing between staying with his ill mother or joining the resistance. Whatever the man's choice, he is in bad faith if he claims that external factors wholly determine his decision (Sartre 2007 [1946]). Social media users may understandably act in bad faith by dissociating from the material tools available to them.

Studies of collective action suggest that social media users may believe that their individual contributions are too small to build and repair their realities, leading to and/or stemming from a sense of learned helplessness or bad faith. According to psychologist Jonathan Haidt, the belief that everyone is on social media can pull users "into a trap" and convince them that they are mere cogs in a machine, unable to exert material autonomy. For this reason, most respond to Haidt's social media age limit proposal by saying "I agree with you, but it's too late" (Haidt 2024). In line with Haidt's reasoning, Marcuse writes that prevailing modes of thought can color anything outside of them as "unrealistic" such that dimensions of material opposition to the status quo seem to disappear (Marcuse 2013 [1964]). For example, social media users often internalize the mentality that deleting their accounts is unrealistic (Haidt 2024). Even though many have the material autonomy to delete social media, the nature of social media as a collective action problem can prevent them from believing that they truly can.

The Principle of Consonance

Definition: Social media tools are not neutral with respect to the autonomy matrix: they exert particular influences on users' material and experiential autonomy, pushing users toward and pulling users away from certain quadrants (Winner 2017 [1980]; Miller 2021). Given that tools are not neutral, we propose the principle of consonance, which states that tools should be designed for consonance in the autonomy matrix. That is, the material and experiential dimensions of autonomy should be consonant rather than dissonant, increasing or decreasing together rather than in an inverse relationship. Tools should therefore guide users away from the EXPERIENTIAL and MATERIAL quadrants toward the BOTH or NEITHER quadrants.[‡]

Justification: Dissonance between axes in the EXPERIENTIAL and MATERIAL quadrants derives from "bullshit," defined by Harry Frankfurt as "a lack of concern with truth, or an indifference to how things really are." According to Frankfurt, the bullshitter's "only indispensably distinctive characteristic is that in a certain way he misrepresents what he is up to" (Hicks et al. 2024). Platforms have politics (Gillespie 2010) that are formed by their motivations (e.g., profit motives) and that influence their behaviors. By encouraging design choices that misalign users' material and experiential autonomy, the prioritization of platform objectives over understanding and honoring users' lived realities

[‡]The decision to pursue the BOTH or NEITHER quadrant will depend on highly contextual end goals like promoting users' well-being in a particular form and is therefore not prescribed by the principle of consonance.

can bring about dissonance. Notably, optimizing exclusively for ease of use inadvertently gave rise to the addictive dangers of the infinite scroll (Botsman 2022) and the intense social comparison triggered by the like button (Oremus 2022). In some cases, however, bullshitting may entail "conscious conspiracies or malicious intentions" (Winner 2017 [1980]). Here, dissonance can result from a special case of bullshitting: lying, where a lie is a "statement made by one who does not believe it with the intention that someone else shall be led to believe it" (Isenberg 1973). Examples include Facebook's deliberate concealment of restrictions on users' material autonomy (Wells et al. 2021) and the covert practice of shadowbanning on various platforms (Savolainen 2022; Cotter 2023). Immanuel Kant argued that lying is always wrong because it prevents the lie recipient from making rational decisions that they are entitled to make (Kant 1949) [1797]). Others emphasize lying's erosion of social relationships and institutions (Bok 2011). The same can be said of bullshitting in general. For users, bullshitting can engender false hope, pseudo-individuality, and euphoria in unhappiness (EXPERIENTIAL quadrant) or provoke learned helplessness, bad faith, and collective action problems (MATERIAL quadrant), all of which can impede the building and repair of structured homes.

While guiding users toward the BOTH quadrant may seem like the only viable path to promote user autonomy, the NEITHER quadrant can still be beneficial in certain circumstances. Consider Heidegger's example of a carpenter pounding nails into wood (Heidegger 1962 [1927]). Eventually, the carpenter comes to wield their hammer as an extension of themself; it is as if their hand has grown a material, metal appendage. But, when the hammer breaks, the carpenter suddenly becomes aware of the hammer not as an ideal extension of their body but as an external tool with which they must collaborate intentionally. Heidegger elucidates that tools breaking every now and then can be a helpful exercise, raising awareness of our material constraints and prompting reflection on our goals and the world around us (Benford et al. 2012; Cai et al. 2024). By experiencing the NEITHER quadrant, users may grow motivated to (re)claim autonomy through innovation, believing that "[t]he master's tools will never dismantle the master's house" (Lorde et al. 1984). For example, Marx's theory of historical materialism posits that social change arises from collective consciousness, rejection, and eventual reimagining of material conditions (Marx 2016 [1867]). This evokes Friedrich Nietzsche's notion of "ressentiment" whereby the powerless transform their impotence into a moral condemnation of their oppressors via an inversion of moral values (Nietzsche 1989 [1887]), arguably serving as a method for genuine resistance (De Beauvoir 2018 [1947]; Fanon 1961). On social media, marginalized creators similarly invent "algospeak" (e.g., "le\$bean" for "lesbian") (Klug et al. 2023) to outsmart unfair content moderation algorithms, pressuring platforms to (re)invigorate creators' material autonomy (Steen et al. 2023).§

Case Studies: An Examination of Sociopolitical Life on Social Media

To demonstrate the descriptive and normative power of our framework, we closely examine features at two main levels of sociopolitical life on social media: content discovery (the process of finding and being presented with content) and content engagement (the process of creating and reacting to content). Descriptively, our examination provides a systematic explanation of the effects that an ecosystem of social media features has on users' material and experiential autonomy. In particular, we analyze how content discovery features drive users toward the EXPERIENTIAL quadrant and how specific cases of content creation and engagement propel users toward the MATERIAL quadrant. Normatively, our examination justifies why we might be uncomfortable with some kinds of social media features, since they violate the principle of consonance. This helps group together design recommendations that we may intuitively view as supporting autonomy because they adhere to the principle.

Content Discovery

Content discovery refers to how users find and are presented with content. We examine factors influencing content presentation, including content's ordering in feeds and its source, as well as feed layouts and navigational features. Platforms often manipulate these presentation elements in ways that create perceived senses of user control while actually imposing significant material constraints. In applying the principle of consonance, we organize and present design recommendations to guide users away from the Experiential quadrant and toward the Both or Neither quadrants with respect to content discovery.

Analysis: Within social media feeds, the default ordering of content based on engagement metrics (prioritizing content with which users will most likely interact) as opposed to chronologically (like Instagram before 2016) (Hamilton 2022) tends to position users in the EXPERIENTIAL quadrant. According to one study, moving users out of Instagram and Facebook's engagement-based feeds substantially lowered the amount of time that users spent on the apps (Guess et al. 2023), indicating that feed ordering had covertly constrained users' material abilities to limit their app usage. Sources of content within feeds can additionally push users toward the EXPERIENTIAL quadrant. In particular, the smooth interweaving of recommended content, content from accounts that users follow, and targeted advertisements (Instagram 2024c) presents itself as natural-not meticulously engineered. For example, a Facebook study revealed that platforms' political preferences could be "subtly elevated above those of the user" with significant results: adding a simple graphic about voting to users' news feeds increased turnout for the 2010 U.S. congressional mid-term elections by approximately 60,000 votes (Zittrain 2014). Recommendations especially promote

§There may be legitimate reasons—descriptive or normative—for the denial of material autonomy. In the case of voting, there might not be enough funding at a given time for programs that would support voting access (a descriptive reason), and some might hold that denying voting rights to convicted felons is morally justifiable (a normative reason).

a sense of material autonomy through Adorno's notion of pseudo-individuality (Adorno and Simpson 1941), helping users feel catered to as individuals (Orlowski et al. 2020). Meanwhile, platforms impose rigid material restrictions on users, often employing one-size-fits-all recommendation algorithms across diverse users (Ekstrand et al. 2015), limiting users' abilities to customize their feeds (Feng et al. 2024), and putting third-party interests above user well-being in recommendation algorithms (Mittelstadt et al. 2016).

In addition to content presentation, the pre-established ways in which users must traverse content can be overlooked and unconsciously accepted, driving users toward the EXPERIENTIAL quadrant. Feed layouts are typically threaded (focused on linking posts, e.g., Twitter/X) or flat (focused on interaction with the overall system, like early Facebook) (Zhang et al. 2024). Most users engage with social media as a leisure activity (Jhaver et al. 2022) and do not actively consider these distinct layouts. However, layouts subtly constrain users' experiences, promoting Marcuse's aforesaid "euphoria in unhappiness" (Armitage and Roberts 2014). One study of threaded versus flat environments revealed that users tend to experience information overload more on Threads but social overload more on Instagram (Kim et al. 2024). Additionally, some research has described Twitter/X as "experientially inaccessible" because of its difficult-to-follow and fastmoving flat design (Sannon et al. 2023). Such downsides can be compounded by the navigational features afforded to users to explore content. Users cannot opt out of infinite scrolling, autoplay, and other features that entice them into rabbit holes within bottomless feeds (Neyman 2017; Botsman 2022; Woolley and Sharif 2022), yet users typically lack awareness of their mass content consumption, believing that they can limit their time on platforms (Baughan et al. 2022). Even though Instagram lets users set reminders to take breaks, users can click to keep scrolling (Instagram 2024e) without cognitively confronting their behaviors. Similarly, TikTok's time limit feature, which requires minors to enter a passcode for continued use, is not enforced for adult users (Keenan 2023). As referenced before, users remain figuratively trapped within Plato's cave, lulled by shadows into overlooking their entrapment.

Design Recommendations: Unlike seamless designs like the infinite scroll that promote speedy access to common tasks, seamful designs "allow users to make up their own minds" about the activities in which they engage (Inman and Ribes 2019). For example, increasing design friction (i.e., slowing down user actions to promote active decision-making) can foster mindfulness in users as they pursue their goals (Mejtoft et al. 2019; Natarajan 2024). To promote movement toward the BOTH quadrant, the following seamful interventions target bolstering material autonomy while keeping high experiential autonomy constant:

- Feed ordering: Explicitly present users with options to order content (e.g., chronologically, with priority given to selected accounts, etc.) rather than burying these options in settings like Instagram (Mosseri 2023) and other platforms currently do.
- Content sources: Enable exploration of multiple feeds, as seen on Twitter/X (Twitter 2023) and

WeChat (Wiki 2021). Allow users to populate feeds with content only from user-selected groups, similar to Instagram (Instagram 2024d). Let users disable personalized algorithms, like TikTok offers European users (Weatherbed 2023), or require users to opt in to recommendation algorithms rather than opt out by default (Binkowski 2019). Increase user customization of recommendation systems (He et al. 2016; Gillespie 2022). Facilitate custom feed creation like on Bluesky (Bluesky 2023).

- *Feed layouts*: Plainly present users with the opportunity to toggle between threaded and flat layouts[¶], like video games let users alter visual settings to support their physical and mental needs (Yuan et al. 2011).
- Navigational features: Clearly present users with alternatives to the infinite scroll, like scrolling with pauses during which platforms load more batches of content (Feng et al. 2024), simply clicking to reveal each new post (e.g., through pagination (Wieczorek et al. 2014)), or opting into finite feeds that only allow access to a limited amount of content for some time period. Provide universal access to effective screen time management features.

Even if the interface is not controllable, content discovery features should nonetheless be transparent, ensuring that users are aware of designs' constraints. To promote movement toward the NEITHER quadrant, the following seamful interventions target decreasing experiential autonomy while keeping low material autonomy fixed:

- Feed ordering: Explicitly label how feeds are ordered (e.g., write "ordered chronologically" at the top), and indicate why individual posts are ordered as they are (e.g., emphasize the date of each chronologically ordered post). Highlight "the cannot" via walk-through tutorials, consumer-friendly Terms of Service (Dreyer and Ziebarth 2014), or warning labels (Varzgani et al. 2023) that indicate what users cannot do with respect to feed ordering.**
- Content sources: Make content origins clear, like Google and Bing do by labeling sponsored search results (Zittrain 2014). Underscore "the cannot" by pointing out, for example, that users cannot opt out of recommendation algorithms that continuously observe their online interactions.
- Feed layouts: Noticeably label layouts as threaded or flat. Highlight "the cannot" by emphasizing users' inabilities to alter these layouts.
- Navigational features: Clearly display how long users have been scrolling (e.g., show the duration of time or number of posts that a user has viewed since their

[¶]While the principle of consonance may not always yield perfectly realistic solutions, it reliably provides viable options to consider alongside practical constraints

The popular interaction design concept of "constraints" can aid users by making clear what can(not) be done with an interface and thus helpfully guiding their actions (Norman 2013).

^{**}BeReal proves that highlighting "the cannot" can even drive platform success. The app encourages users to "be real" (transparent) with their peers while mirroring transparency in its design, openly preventing users from engaging in certain actions like adding filters to posts (McClusky 2022).

most recent log in). Promote more mindful content discovery by offering weekly usage metrics (like Apple offers (Apple 2024)) or reflective prompts (e.g., while platforms load more scrollable content) (Feng et al. 2024). Call attention to "the cannot" by transparently communicating the lack of alternatives to infinite scrolling, autoplay, and similar features.

Content Creation and Engagement

Content creation focuses on users generating content, while content engagement involves users interacting with existing content through (dis)likes, comments, and other reactions. Creators and viewers often perceive constraints imposed by the other: creators may strive to please audiences or go viral, while viewers can face community pressure to react to content in certain ways. Both have tools for exercising material autonomy but tend to overlook them due to perceived limitations. In applying the principle of consonance, we organize and present design recommendations to guide users away from the MATERIAL quadrant and toward the BOTH or NEITHER quadrants with respect to content creation and engagement.

Analysis: Creators experience the MATERIAL quadrant when they believe that others' preferences are akin to dogma that their content cannot violate. By posting content, they become subject to a form of panoptic surveillance, wherein viewers judge their content without necessarily being subject to reciprocal judgment (Foucault 2023 [1975]). Creators commonly feel pressured to disregard what they want to produce in favor of minimizing negative feedback or maximizing positive feedback (Sleeper et al. 2013). For example, many create content that is not entirely pleasurable to them in order to garner others' approval or avoid criticism (Lee et al. 2020), sometimes becoming increasingly extreme versions of whatever viewers wish to see (Haidt 2024). Yet, viewers' feedback does not materially dictate creators' content; only in rare instances (e.g., in the case of extreme spamming) might a deluge of negative responses trigger content removal (Week 2015). Opaque algorithms can also act as panoptic surveillants whom creators aspire to "trick and please" (Klug et al. 2021), giving rise to "algorithmic folk theories" that often convince creators to be inauthentic for a chance at virality. However, users' theories commonly lead to "algorithm disillusionment" in which users' algorithmic expectations do not align with the actual material reality (Karizat et al. 2021). For instance, even the likeliest ingredients for virality (high viewer engagement and posting at popular times (Klug et al. 2021)) do not materially constrain what content users can create. If a creator's goal is to maximize content engagement, they have various material tools at their disposal, such as joining "engagement pods" that agree to mutually engage with one another's content (O'Meara 2019) or forming groups like the Internet Creators Guild that offer successful strategies for community building and monetization (Green 2016). There are also material tools to help creators pursue goals other than achieving high engagement. For example, creators can leverage collective action to dismantle problematic community norms like Twitch streamers did in 2021 (Parrish 2021) or gain inspiration from platforms like Nebula, which

offers a model for ad-free content and reduced viewership incentives (Patel 2022). Creators may therefore act in Sartrian bad faith when they claim that external factors (here, viewers or viral-pushing algorithms) govern what they can or cannot post.

Features that facilitate content engagement similarly push viewers into the MATERIAL quadrant. When perusing their feeds, many users respond instinctively to content, dropping a reaction with no consideration of its potential material impact. In the Black Mirror episode "Hated in the Nation," hundreds of thousands mindlessly post #DeathTo and tag an account without comprehending the lethality of their actions: whomever has the most #DeathTo's directed at them on a given day is killed (Brooker and Hawes 2016). Everyday users experience a similar dissonance between their material and experiential autonomy. Because of social pressures (Haug et al. 2024) and platform algorithms that use viewer engagement to push (Klug et al. 2021) or downrank (Nicholas 2022) content, users' reactions to content—especially in the aggregate—can unknowingly move creators toward renown or infamy. In addition, the majority's taste in content can subtly pressure users into conforming their reactions. Some platforms, for example, are known for their hostile communicative spaces and appear unwelcoming to users who do not engage with content in similar ways (Miller et al. 2022). Under perceived surveillance by other viewers, users may adopt mentalities of learned helplessness or bad faith, believing that they cannot break content engagement norms.

Design Recommendations: Michel Foucault describes the "unequal gaze" created by the panopticon's architecture: unable to determine whether they are being observed (by guards) in a given moment, individuals come to surveil and discipline themselves (Foucault 2023 [1975]).* A straightforward solution involves building barriers between the watchers and the watched. Alternatively, being transparent about when surveillance occurs, signaling potential consequences of surveilling, and emphasizing a diversity of design features rather than just a tower of watchers could better align the psychological impacts of surveillance with the material reality. To promote movement toward the BOTH quadrant, the following interventions target bolstering experiential autonomy while keeping high material autonomy fixed:

Content creation: Plainly promote audience management tools that, for example, allow creators to prevent particular users in their networks from viewing individual posts (Sleeper et al. 2013). Explicitly give creators the option to hide their (dis)like counts, which

^{††}Extreme cases of online abuse (Harwell and Lorenz 2022) and algorithmic biases (Duffy and Meisner 2023; Steen et al. 2023) can restrict material autonomy by leaving users with insufficient tools for redress. For the sake of demonstrating our framework's practical application in regard to the MATERIAL quadrant, we focus here on instances in which users' abilities to produce and respond to desired content are not materially restricted by factors beyond reasonable community guidelines.

^{*}Contemporary surveillance is often attached to penal structures that do indeed restrict material autonomy, whereas the cases of online surveillance by viewers and viral-pushing algorithms that we describe do not eradicate users' material tools, as we discussed.

Instagram allows (Instagram 2024b), or to relativize their counts based on particular audiences, like on China's WeChat where hearts are public likes and thumbs ups are private likes (WeChat 2015). Enable creators to disable commenting on their posts or order comments in ways that do not simply prioritize the most popular ones, as Facebook offers (Facebook 2024); however, be sure to draw users' attention to these possibilities instead of only displaying them in laundry lists of options. Decrease the allure of algorithmic folk theories by publishing more ingredients for content virality or telling users when the algorithm did indeed promote or downrank their content.† Emphasize the validity of a multiplicity of goals for content creation. For instance, beyond standard engagement metrics, platforms could offer more diverse reaction options (like LinkedIn's "celebrate," "funny," etc. (LinkedIn 2024)) or use natural language processing to cluster viewer comments into categories (e.g., "educational," "nostalgic," etc.).

• Content engagement: Clearly convey the material significance of reaction mechanisms. For example, introduce pop-ups seeking users' confirmation before displaying (dis)likes or comments that they give, or add warning labels to potentially harmful reactions by applying natural language processing (Alrehili 2019) to users' comment drafts. Tether certain reactions to positive material impacts. For example, connect users' reactions to fundraising efforts, similar to what the search engine Ecosia does by using clicks to plant trees (Almanac 2024). Allow users to toggle on and off the material impacts of their reactions, like on 2chan, which lets users indicate in a reply to a thread that they do not want their engagement to "bump" the thread up in the overall thread list (Kaigo and Watanabe 2007). As mentioned above, deemphasize reaction counts and comments to support users in not feeling forced to conform their reactions to others' feedback.

Importantly, it may be better to eliminate certain material possibilities than to include them in a transparent system.[‡] To promote movement toward the NEITHER quadrant, the following interventions target decreasing material autonomy while keeping low experiential autonomy fixed:

- Content creation: Require content to undergo a screening process such that no content that deviates from a determined topic or norm is allowed; this is analogous to existing subreddits like r/pics, which has broad, documented guidelines for content including a rule against uploading pictures that focus on a screen.
- Content engagement: Noticeably deemphasize reaction counts and comments (e.g., YouTube made dislike counts private to creators (YouTube 2021)). Remove some forms of reactions and meta-reactions (e.g., the ability to like or dislike comments). For instance, the extinct social media platform We Heart It lacked features for disliking and commenting; users could only "heart" their favorite content, which helped them easily organize content into collections that they

loved (Newswire 2015). Transparently reduce or eliminate the role of viewer engagement in viral-pushing algorithms.

Conclusion

Drawing upon political philosophy, we advance a novel conceptual framework for understanding autonomy on social media. Our framework builds upon prior work that explores both material components of autonomy-e.g., levels of control over activities (Hutton 2019; Sahebi and Formosa 2022; Bennett et al. 2023)—and experiential components—e.g., the ability to reflect on values, imagine alternatives, and freely make choices grounded in one's beliefs (Susser et al. 2019; Sahebi and Formosa 2022). We emphasize the causes, effects, and interactions between material and experiential autonomy: importantly, we emphasize that we should not take the alignment of material and experiential autonomy for granted. Our framework systematically generates important and practical questions regarding autonomy in social media design: "How do users' perceptions of tools direct their (seeking out) access to those tools?", "What design interactions sustain abstention from tool use despite tool availability?", and so on. Our vocabulary allows people to formulate common patterns across otherwise disjoint theoretical, applied, and ethnographic social media studies; it also provides normative design recommendations via the principle of consonance. Our case studies of content discovery and content creation and engagement demonstrate the explanatory power of our framework and the normative import of the principle of consonance. Future work could explore how tech policy can complement social media design to promote user autonomy. Moreover, future empirical work in HCI could seek to further understand the relationship between material and experiential autonomy through objective analyses of available user tools alongside studies of user perceptions.

Wilfred Sellars famously declared that the aim of philosophy is "to understand how things in the broadest possible sense of the term hang together in the broadest possible sense of the term" (Sellars 1962). Throughout this article, ideas from political philosophy have played an integral role in characterizing how a broad range of 'things' on social media 'hang together' with respect to user autonomy. Philosophers create concepts (Deleuze and Guattari 1994) that allow us to make sense of dense empirical and theoretical information—recall, among other ideas, Heidegger (1962 [1927])'s concept of home as providing ontological security, Horkheimer et al. (2002 [1944])'s concept of pseudo-individuality as a difference-producing homogeneity, and Foucault (2023 [1975])'s concept of panopticism formulating the conditions for self-surveillance and regulation. Political philosophy, then, serves as a dealer

[†]To prevent aiding bad actors who might learn to game the system if given more algorithmic transparency, downranking might be kept undisclosed in certain cases (e.g., for users with a history of violating a platform's community guidelines).

[‡]Consider the role of engagement in viral-pushing algorithms, which made a teenage girl's digital fame dependent on oftentimes inappropriate comments from an audience predominantly composed of adult men (Blunt 2024).

of conceptual vocabulary, allowing us to explain social media phenomena in intellectually clear ways.

Social media platforms present themselves publicly as uplifting users' autonomy—supporting users in contributing to structured homes. They claim to "[give] people the power to create space to find belonging in their lives" (Discord 2024), "promote and protect the public conversation—to be the town square of the internet" (X 2022), and "[g]ive people the power to build community and bring the world closer together" (Instagram 2024a). However, much ink has been spilled documenting the ways in which platforms placate, addict, harm, and otherwise influence users in ways that seem antithetical to uplifting autonomy (Andreassen et al. 2017; Lupinacci 2021; Parrish 2021, inter alia). Our framework provides a language for systematically understanding why this is the case: in scrambling toward rather amorphous conceptions of "autonomy," social media designs often (inadvertently or intentionally) forsake one dimension of autonomy while developing the other, therefore producing dissonance. Social media designers and researchers have beautiful ideas of what social media could be for users, but actualizing these realities must begin with a clearer and more complete picture of what autonomy really is.

References

- Adorno TW and Simpson G (1941) On popular music. Zeitschrift für Sozialforschung 9(1): 17–48.
- Allcott H and Gentzkow M (2017) Social media and fake news in the 2016 election. *Journal of economic perspectives* 31(2): 211–236.
- Almanac TC (2024) Switch your search engine to ecosia, a not-for-profit that makes a big impact. URL https://thecarbonalmanac.org/search/.
- Alrehili A (2019) Automatic hate speech detection on social media: A brief survey. In: 2019 IEEE/ACS 16th International Conference on Computer Systems and Applications (AICCSA). IEEE, pp. 1–6.
- Andreassen CS, Pallesen S and Griffiths MD (2017) The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors* 64: 287–293. DOI:https://doi.org/10.1016/j.addbeh. 2016.03.006. URL https://www.sciencedirect.com/science/article/pii/S0306460316301095.
- Apple (2024) Use screen time on your iphone or ipad. URL https://support.apple.com/en-us/108806.
- Arias M (2019) The role and impact of social media in protesting oppression in venezuela. Master's dissertation. University of Miami.
- Armitage J and Roberts J (2014) Luxury new media: Euphoria in unhappiness. *Luxury* 1(1): 113–132.
- Au A and Chew M (2017) How do you feel? managing emotional reaction, conveyance, and detachment on facebook and instagram. *Bulletin of Science, Technology & Society* 37(3): 127–137.
- Bakunin MA (1990 [1873]) *Bakunin: Statism and anarchy*. Cambridge University Press.
- Barlow JP et al. (1996) A declaration of the independence of cyberspace.

- Baughan A, Zhang MR, Rao R, Lukoff K, Schaadhardt A, Butler LD and Hiniker A (2022) "i don't even remember what i read": How design influences dissociation on social media. In: *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems.* pp. 1–13.
- bell hooks (2009 [1990]) *Belonging: A Culture of Place*. New York: Routledge. ISBN 9781138328976.
- Benford S, Greenhalgh C, Giannachi G, Walker B, Marshall J and Rodden T (2012) Uncomfortable interactions. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, CHI '12. New York, NY, USA: Association for Computing Machinery. ISBN 9781450310154, p. 2005–2014. DOI:10.1145/2207676.2208347. URL https://doi.org/10.1145/2207676.2208347.
- Bennett D, Metatla O, Roudaut A and Mekler ED (2023) How does hei understand human agency and autonomy? In: *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. pp. 1–18.
- Binkowski B (2019) I was a facebook fact-checker it was like playing a doomed game of whack-a-mole. URL https://www.buzzfeednews.com/article/brookebinkowski/fact-checking-facebook-doomed.
- Bluesky (2023) Algorithmic choice with custom feeds.

 URL https://bsky.social/about/blog/7-27-2023-custom-feeds.
- Blunt K (2024) The influencer is a young teenage girl. the audience is 92% adult men. URL https://www.wsj.com/tech/young-influencers-instagram-meta-safety-risks-6d274
- Bok S (2011) Lying: Moral choice in public and private life. Vintage.
- Botsman R (2022) Tech leaders can do more to avoid unintended consequences. URL https://www.wired.com/story/technology-unintended-consequences/.
- Brooker C(Writer) and Hawes J(Director) (2016) Black Mirror: Hated in the Nation.
- Butler J (1990) Gender Trouble: Feminism and the Subversion of Identity. United States: Routledge. ISBN 0-415-38955-0.
- Cai A, Arawjo I and Glassman EL (2024) Antagonistic ai.
- Casale S and Fioravanti G (2018) Why narcissists are at risk for developing facebook addiction: The need to be admired and the need to belong. *Addictive Behaviors* 76: 312–318. URL https://www.sciencedirect.com/science/article/pii/S0306460317303362.
- Casey ES (1993) Getting back into place: Toward a renewed understanding of the place-world. Indiana University Press.
- Chung H and Gale J (2009) Family functioning and self-differentiation: A cross-cultural examination. *Contemporary Family Therapy* 31: 19–33.
- Coate M (2018) "yes, the whole approach is questionable, yes, false": Phenomenology and the new realism. *The Journal of Speculative Philosophy* 32(3): 450-461. URL https://www.jstor.org/stable/10.5325/jspecphil.32.3.0450.
- Cotter K (2023) "shadowbanning is not a thing": black box gaslighting and the power to independently know and credibly critique algorithms. *Information, Communication & Society* 26(6): 1226–1243.
- Datta A, Buchegger S, Vu LH, Strufe T and Rzadca K (2010)

 Decentralized online social networks. *Handbook of social*

- network technologies and applications: 349-378.
- De Beauvoir S (2018 [1947]) The ethics of ambiguity. Open Road Media
- Deleuze G and Guattari F (1994) *What is Philosophy?* New York: Columbia University Press. ISBN 978-0231079891. Original work published in 1991 as *Qu'est-ce que la philosophie?* by Les éditions de Minuit, France.
- Department of Justice (2020) Guide to disability rights laws. URL https://www.ada.gov/resources/disability-rights-guide/.
- Díaz Á and Hecht-Felella L (2021) Double standards in social media content moderation. *Brennan Center for Justice at New York University School of Law*: 1–23.
- Discord (2024) About discord our mission and values. URL https://discord.com/company. Accessed: 2024-07-30
- Dreyer S and Ziebarth L (2014) Participatory transparency in social media governance: combining two good practices. *Journal of Information Policy* 4: 529–546.
- Du Bois WEB and Marable M (2015 [1903]) Souls of black folk. Routledge.
- Duffy BE and Meisner C (2023) Platform governance at the margins: Social media creators' experiences with algorithmic (in) visibility. *Media, Culture & Society* 45(2): 285–304.
- Duguay S, Burgess J and Suzor N (2020) Queer women's experiences of patchwork platform governance on tinder, instagram, and vine. *Convergence* 26(2): 237–252.
- Ekstrand MD, Kluver D, Harper FM and Konstan JA (2015) Letting users choose recommender algorithms: An experimental study. In: *Proceedings of the 9th ACM Conference on Recommender Systems*. pp. 11–18.
- Facebook (2024) Turn comment ranking on or off for your facebook page. URL https://www.facebook.com/help/www/1494019237530934.
- Fanon F (1961) The wretched of the earth, tr. *Constance Farrington*, *preface by Jean–Paul Sartre*.
- Fanon F (2023 [1952]) Black skin, white masks. In: *Social theory re-wired*. Routledge, pp. 355–361.
- Feng KK, Koo X, Tan L, Bruckman A, McDonald DW and Zhang AX (2024) Mapping the design space of teachable social media feed experiences. In: *Proceedings of the CHI Conference on Human Factors in Computing Systems*. pp. 1–20.
- Figlio K (2018) The dread of sameness: social hatred and freud's "narcissism of minor differences". In: *Psychoanalysis and politics*. Routledge, pp. 29–46.
- Fisher M (2022 [2009]) Capitalist realism: Is there no alternative? John Hunt Publishing.
- Foucault M (2023 [1975]) Discipline and punish. In: *Social theory re-wired*. Routledge, pp. 291–299.
- Freud S (2015 [1930]) Civilization and its discontents. Broadview Press.
- Fuchs C (2021) Social media: A critical introduction .
- Geiger RS (2016) Bot-based collective blocklists in twitter: the counterpublic moderation of harassment in a networked public space. *Information, Communication & Society* 19(6): 787–803.
- Geuss R (2008) Philosophy and real politics. Princeton University Press.
- Gillespie T (2010) The politics of 'platforms'. *New media & society* 12(3): 347–364.

- Gillespie T (2022) Do not recommend? reduction as a form of content moderation. *Social Media+ Society* 8(3): 20563051221117552.
- Goldman E (1969 [1910]) *Anarchism: and other essays.* Courier Corporation.
- Gramsci A (2020 [1971]) Selections from the prison notebooks. In: *The applied theatre reader*. Routledge, pp. 141–142.
- Green H (2016) Introducing the internet creators guild. URL https://medium.
 com/internet-creators-guild/
 introducing-the-internet-creators-guild-e0db6867e0d
- Guess AM, Malhotra N, Pan J, Barberá P, Allcott H, Brown T, Crespo-Tenorio A, Dimmery D, Freelon D, Gentzkow M et al. (2023) How do social media feed algorithms affect attitudes and behavior in an election campaign? *Science* 381(6656): 398–404.
- Hacking I (1995) The looping effects of human kinds.
- Haidt J (2024) The Anxious Generation: How the Great Rewiring of Childhood Is Causing an Epidemic of Mental Illness. Penguin Press.
- Hamilton IA (2022) You can finally switch your instagram
 feed to a chronological timeline. here's how. URL
 https://www.businessinsider.in/tech/news/
 you-can-finally-switch-your-instagram-feed-to-a-ch:
 amp_slidelist/90421296.cms.
- Harwell D and Lorenz T (2022) Sorry you went
 viral. URL https://www.washingtonpost.
 com/technology/interactive/2022/
 tiktok-viral-fame-harassment/.
- Haug M, Reiter J and Gewald H (2024) Content creators on instagram—how users cope with stress on social media. *Telematics and Informatics Reports* 13: 100111.
- He C, Parra D and Verbert K (2016) Interactive recommender systems: A survey of the state of the art and future research challenges and opportunities. *Expert Systems with Applications* 56: 9–27.
- Heidegger M (1962 [1927]) *Being and Time*. New York: Harper & Row.
- Hicks MT, Humphries J and Slater J (2024) Chatgpt is bullshit. *Ethics and Information Technology* 26(2): 38.
- Hobbes T (1982 [1651]) *Leviathan*. London: Penguin Classics. ISBN 978-0140431957. 59364th edition.
- Holmgren HG and Coyne SM (2017) Can't stop scrolling!: pathological use of social networking sites in emerging adulthood. *Addiction Research & Theory* 25(5): 375–382.
- Horkheimer M, Adorno TW and Noeri G (2002 [1944]) *Dialectic of enlightenment*. Stanford University Press.
- Hutton KM (2019) *Time for Autonomy: Subjectivity, Sociality and Time with Social Media and its Implications for Well-Being.* PhD Thesis, University of Saskatchewan.
- Inman S and Ribes D (2019) "beautiful seams" strategic revelations and concealments. In: *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. pp. 1–14.
- Instagram (2024a) About instagram. URL https://about.instagram.com/. Accessed: 2024-07-30.
- Instagram (2024b) Hide or unhide like counts on instagram posts and reels. URL https://www.facebook.com/help/instagram/113355287252104.

- Instagram (2024c) How instagram feed works. URL https: //help.instagram.com/1986234648360433/ ?helpref=related_articles.
- Instagram (2024d) Only see posts from people you follow in your instagram feed. URL https://help.instagram.com/505299634436870.
- Instagram (2024e) Set a daily time limit on instagram. URL https://help.instagram.com/2049425491975359.
- Isenberg A (1973) Deontology and the ethics of lying. In: Aesthetics and Theory of Criticism: Selected Essays of Arnold Isenberg. Chicago: University of Chicago Press, pp. 245–264.
- Jhaver S, Chen QZ, Knauss D and Zhang AX (2022) Designing word filter tools for creator-led comment moderation. In: Proceedings of the 2022 CHI conference on human factors in computing systems. pp. 1–21.
- Jhaver S, Ghoshal S, Bruckman A and Gilbert E (2018) Online harassment and content moderation: The case of blocklists. *ACM Transactions on Computer-Human Interaction (TOCHI)* 25(2): 1–33.
- Jhaver S, Zhang AQ, Chen QZ, Natarajan N, Wang R and Zhang AX (2023) Personalizing content moderation on social media: User perspectives on moderation choices, interface design, and labor. Proceedings of the ACM on Human-Computer Interaction 7(CSCW2): 1–33.
- Kaigo M and Watanabe I (2007) Ethos in chaos? reaction to video files depicting socially harmful images in the channel 2 japanese internet forum. *Journal of Computer-Mediated Communication* 12(4): 1248–1268.
- Kang H and Lou C (2022) AI agency vs. human agency: understanding human—AI interactions on TikTok and their implications for user engagement. *Journal of Computer-Mediated Communication* 27(5): zmac014. DOI:10.1093/jcmc/zmac014. URL https://doi.org/10.1093/jcmc/zmac014.
- Kant I (1949 [1797]) On a supposed right to lie from altruistic motives. *Critique of practical reason and other writings in moral philosophy*: 346–350.
- Karizat N, Delmonaco D, Eslami M and Andalibi N (2021) Algorithmic folk theories and identity: How tiktok users coproduce knowledge of identity and engage in algorithmic resistance. Proceedings of the ACM on human-computer interaction 5(CSCW2): 1–44.
- Keenan C (2023) New features for teens and families on tiktok.

 URL https://newsroom.tiktok.com/en-us/ Marx K and I new-features-for-teens-and-families-on-tiktok-efassics.
- Kidd D and McIntosh K (2016) Social media and social movements. *Sociology Compass* 10(9): 785–794.
- Kim S, Ma I and Son J (2024) How does stress experienced on instagram differ from threads? comparing social media fatigue based on platform types. *Computers in Human Behavior* 157: 108249.
- Klug D, Qin Y, Evans M and Kaufman G (2021) Trick and please. a mixed-method study on user assumptions about the tiktok algorithm. In: *Proceedings of the 13th ACM Web Science Conference 2021*. pp. 84–92.
- Klug D, Steen E and Yurechko K (2023) How algorithm awareness impacts algospeak use on tiktok. In: *Companion Proceedings of the ACM Web Conference 2023*. pp. 234–237.

Koktvedgaard Zeitzen M (2008) Polygamy: a cross cultural analysis. *Berg, New York* .

- Lee HY, Jamieson JP, Reis HT, Beevers CG, Josephs RA, Mullarkey MC, O'Brien JM and Yeager DS (2020) Getting fewer "likes" than others on social media elicits emotional distress among victimized adolescents. *Child Development* 91(6): 2141–2159.
- Lee-Won RJ, Shim M, Joo YK and Park SG (2014) Who puts the best "face" forward on facebook?: Positive self-presentation in online social networking and the role of self-consciousness, actual-to-total friends ratio, and culture. *Computers in Human Behavior* 39: 413–423. DOI:https://doi.org/10.1016/j.chb.2014.08.007. URL https://www.sciencedirect.com/science/article/pii/S074756321400435X.
- LinkedIn (2024) Use linkedin reactions. URL https://www. linkedin.com/help/linkedin/answer/a528190.
- Locke J (2021 [1689]) Second treatise of government. Phoemixx Classics Ebooks.
- Lorde A et al. (1984) The master's tools will never dismantle the master's house. *Sister outsider: Essays and speeches* 110114.
- Lowenstein K (1953) The role of ideologies in political change. *International Social Science Bulletin* 5(1): 51–74.
- Lupinacci L (2021) 'absentmindedly scrolling through nothing': liveness and compulsory continuous connectedness in social media. *Media, Culture & Society* 43(2): 273–290.
- Mahar K, Zhang AX and Karger DR (2018) Squadbox: A tool to combat email harassment using friendsourced moderation. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* URL https://dl.acm.org/doi/10.1145/3173574.3174160.
- Mäntymäki M, Islam AN, Turel O and Dhir A (2022) Coping with pandemics using social network sites: A psychological detachment perspective to covid-19 stressors. *Technological Forecasting and Social Change* 179: 121660.
- Marcuse H (2013 [1964]) One-dimensional man: Studies in the ideology of advanced industrial society. Routledge.
- Marek J (2023) The impatient gaze: on the phenomenon of scrolling in the age of boredom. *Semiotica* 2023(254): 107–135.
- Marx K (1844) On the jewish question. *Deutsch-Französische Jahrbücher* Originally published in German as "Zur Judenfrage".
- Marx K (2016 [1867]) Capital. In: *Social Theory Re-Wired*. Routledge, pp. 145–151.
- Marx K and Engels F (1846) *The German Ideology*. International Publishers Co.
- Marx K and Engels F (1848) *The Communist Manifesto*. Penguin
- Maslow AH (1943) A theory of human motivation. *Psychological review* 50(4): 370.
- Matz SC, Kosinski M, Nave G and Stillwell DJ (2017) Psychological targeting as an effective approach to digital mass persuasion. *Proceedings of the national academy of sciences* 114(48): 12714–12719.
- McClusky M (2022) What it's like to use bereal, an instagram rival that lets you post only once a day. URL https://time.com/6167952/how-be-real-app-works/.
- Mejtoft T, Hale S and Söderström U (2019) Design friction. In: Proceedings of the 31st European Conference on Cognitive Ergonomics. pp. 41–44.

Merleau-Ponty M and Smith C (1962) Phenomenology of perception, volume 26. Routledge London.

- Miller B (2021) Is technology value-neutral? Science, Technology, & Human Values 46(1): 53-80.
- Miller C, Cohen S, Klug D, Vasilescu B and KaUstner C (2022) " did you miss my comment or what?" understanding toxicity in open source discussions. In: Proceedings of the 44th International Conference on Software Engineering. pp. 710-722.
- Mittelstadt BD, Allo P, Taddeo M, Wachter S and Floridi L (2016) The ethics of algorithms: Mapping the debate. Big Data & Society 3(2): 2053951716679679.
- Mohammadi E, Thelwall M, Kwasny M and Holmes KL (2018) Academic information on twitter: A user survey. PloS one 13(5): e0197265.
- Mosseri A (2023) Instagram ranking explained. URL https: //about.instagram.com/blog/announcements/ instagram-ranking-explained.
- Myers West S (2018) Censored, suspended, shadowbanned: User interpretations of content moderation on social media platforms. *New Media & Society* 20(11): 4366–4383.
- Natarajan N (2024) Do they stop? how do they stop? why do they stop? whether, how, and why teens insert "frictions" into social media's infinite scroll. International Journal of Communication 18: 20.
- Neuhouser F (2011) Jean-jacques rousseau and the origins of autonomy. Inquiry 54(5): 478-493.
- Newswire P (2015) We heart it, named to best apps of 2015 google, launches heartist program to recognize its top members. URL https: //www.prnewswire.com/news-releases/
- Neyman CJ (2017) A survey of addictive software design .
- Nicholas G (2022) Shedding light on shadowbanning. Center for Democracy & Technology.
- Nietzsche F (1989 [1887]) On the genealogy of morals and ecce homo. Vintage.
- Norman D (2013) The design of everyday things: Revised and expanded edition. Basic books.
- Oremus W (2022) How facebook designed the like button-and made social media into a popularity contest. **URL** https://www.fastcompany.com/90780140/
- Orlowski J, Coombe D, Curtis V(Writers) and Orlowski J(Director) (2020) The social dilemma.
- O'Meara V (2019) Weapons of the chic: Instagram influencer engagement pods as practices of resistance to instagram platform labor. Social Media+ Society 5(4): 2056305119879671.
- Parrish A (2021) After weeks of hate raids, twitch streamers are taking a day off in protest. URL https: //www.theverge.com/2021/8/31/22650578/
- Patel N (2022) The videos that don't work on youtube and the future of the creator business with nebula ceo dave wiskus. https://www.theverge.com/23076663/
- Plato P et al. (2008 [375 BC]) The republic, volume 7. Wiley Online Library.

- Puett M and Gross-Loh C (2016) The path: What Chinese philosophers can teach us about the good life. Simon and
- Rawls J (1971) A Theory of Justice: Original Edition. Harvard University Press. ISBN 9780674880108. URL http:// www.jstor.org/stable/j.ctvjf9z6v.
- Rousseau JJ (2016 [1762]) The social contract. In: Democracy: A Reader. Columbia University Press, pp. 43-51.
- Sahebi S and Formosa P (2022) Social media and its negative impacts on autonomy. Philosophy & technology 35(3): 70.
- Sannon S, Young J, Shusas E and Forte A (2023) Disability activism on social media: Sociotechnical challenges in the pursuit of visibility. In: Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems. pp. 1–15.
- Sartre JP (2007 [1946]) Existentialism is a Humanism. University Press.
- Sartre JP, Richmond S and Moran R (2022 [1943]) Being and nothingness: An essay in phenomenological ontology. Routledge.
- Savolainen L (2022) The shadow banning controversy: perceived governance and algorithmic folklore. Media, Culture & Society 44(6): 1091-1109.
- Searle JR (1995) The Construction of Social Reality. New York: Free Press. ISBN 9780684831794.
- Seering J (2020) Reconsidering self-moderation: the role of research in supporting community-based models for online content moderation. Proceedings of the ACM on Human-Computer Interaction 4(CSCW2): 1–28.
- Seligman ME (1972) Learned helplessness. Annual review of medicine 23(1): 407-412.
- Sellars W (1962) Philosophy and the scientific image of man. we-heart-it-named-to-best-apps-of-2015-by-googhe-Colodny RG-(ed) Frontiers of Science and Philosophy-its-top-r Pittsburgh: University of Pittsburgh Press, pp. 35-78.
 - Shockley KM, Douek J, Smith CR, Peter PY, Dumani S and French KA (2017) Cross-cultural work and family research: A review of the literature. Journal of Vocational Behavior 101: 1–20.
 - Singer P (2017) Famine, affluence, and morality. In: Applied Ethics. Routledge, pp. 132-142.
 - Sleeper M, Balebako R, Das S, McConahy AL, Wiese J and Cranor LF (2013) The post that wasn't: exploring selfcensorship on facebook. In: Proceedings of the 2013 Conference on Computer Supported Cooperative Work, CSCW '13. New York, NY, USA: Association for Computing
- the-inside-story-of-how-facebook-designed-the-Machineryt ISBN 9781450315345cp. 293#802: DOIntoH45/popularity 2441776.2441865. URL https://doi.org/10.1145/ 2441776.2441865.
 - Spinoza B (1949 [1677]) Ethics. 11. Simon and Schuster.
 - Srnicek N (2017) Platform capitalism. John Wiley & Sons.
 - Steen E, Yurechko K and Klug D (2023) You can (not) say what you want: Using algospeak to contest and evade algorithmic content moderation on tiktok. Social Media+ Society 9(3): 20563051231194586.
- twitch-streamers-walkout-protest-hate-raids.Susser D, Roessler B and Nissenbaum H (2019) Technology, autonomy, and manipulation. Internet policy review 8(2).
- Thomas EF, Cary N, Smith LG, Spears R and McGarty C (2018) The role of social media in shaping solidarity and compassion nebula-youtube-creator-business-future-startup-fade? How the well-athorf a child turned apathy into action but distress took it away. New Media & Society 20(10): 3778-

```
Twitter (2023) Twitter's recommendation algorithm.

URL https://blog.x.com/engineering/
en_us/topics/open-source/2023/
twitter-recommendation-algorithm.
```

Tzu L (2020 [4th century BC]) *Tao te ching*. Courier Dover Publications.

Union of the Physically Impaired Against Segregation (1976) Fundamental principles of disability. Policy statement, UPIAS, London.

Varzgani H, Kordzadeh N and Lee K (2023) Toward designing effective warning labels for health misinformation on social media. In: *HICSS*. pp. 144–153.

Waldman AE (2022) Disorderly content. Wash. L. Rev. 97: 907.

Weatherbed J (2023) Tiktok's algorithm will be Technology. pp. 3 optional in europe. URL https://www. Zittrain JL (2014) Engthererge.com/2023/8/4/23819878/ Forum, volume 1 tiktok-fyp-algorithm-eu-dsa-personalization-data-tracking.

Weber M (2004 [1919]) The Vocation Lectures. Illinois: Hackett

WeChat (2015) Tech tip - your guide to wechat moments.

URL https://blog.wechat.com/2015/06/12/
tech-tip-your-guide-to-wechat-moments/.

Books. Translated by Rodney Livingstone.

Week T (2015) A dislike button is just what the internet needs — as long as it doesn't work. URL https://theweek.com/articles/446867/dislike-button-just-what-internet-needs--long-doesnt-work.

Weil S (1949) The Need for Roots: Prelude to a Declaration of Duties Towards Mankind. New York: Putnam's Sons. ISBN 9780060902261.

Wells G, Horwitz J and Seetharaman D (2021) Facebook knows instagram is toxic for teen girls, company documents show. URL https://www.wsj.com/articles/

Wheeler M (2020) Martin Heidegger. In: Zalta EN (ed.)

The Stanford Encyclopedia of Philosophy, Fall 2020 edition.

Metaphysics Research Lab, Stanford University.

Wieczorek AM, Klyszaiko Z, Sarzynska L, Szóstek A, Chmiel K.

Wieczorek AM, Klyszejko Z, Sarzynska J, Szóstek A, Chmiel K, Soluch T and Brzezicka A (2014) Mode of text presentation and its influence on reading efficiency: Scrolling versus pagination. *Studia Psychologica* 56(4): 309.

Wiki W (2021) Wechat channels: a comprehensive guide. URL https://wechatwiki.com/wechat-resources/ wechat-channels-short-video-feature-complete-guide/.

Winner L (2017 [1980]) Do artifacts have politics? In: *Computer ethics*. Routledge, pp. 177–192.

Wolfsfeld G, Segev E and Sheafer T (2013) Social media and the arab spring: Politics comes first. *The International Journal of Press/Politics* 18(2): 115–137.

Woolley K and Sharif MA (2022) The psychology of your scrolling addiction. URL https://hbr.org/2022/01/the-psychology-of-your-scrolling-addiction.

X (2022) Twitter 2.0: Our continued commitment to the public conversation. URL https://blog.x.com/en_us/topics/company/2022/twitter-2-0-our-continued-commitment-to-the-public-conversation.

Young IM (2005) On female body experience: "Throwing like a girl' and other essays. Oxford University Press.

YouTube (2021) An update to dislikes on youtube. URL https://blog.youtube/news-and-events/update-to-youtube/.

Yuan B, Folmer E and Harris FC (2011) Game accessibility: a survey. Universal Access in the information Society 10: 81– 100

Zhang AX, Bernstein MS, Karger DR and Ackerman MS (2024) Form-from: A design space of social media systems. Proceedings of the ACM on Human-Computer Interaction 8(CSCW1): 1–47.

Zhang AX, Hugh G and Bernstein MS (2020) Policykit: building governance in online communities. In: *Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology*. pp. 365–378.

Zittrain JL (2014) Engineering an election. In: *Harvard Law Review Forum*, volume 127. p. 335.

facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739.

Accessed: 2024-07-30.