

Future DOI: <https://doi.org/10.1145/3614407.3643705>

## Techno-legal Solutionism: Regulating Children’s Online Safety in the United States

María P. Angel

Ph.D. Candidate, University of Washington School of Law, [mpangel@uw.edu](mailto:mpangel@uw.edu)

danah boyd

Partner Researcher, Microsoft Research and Distinguished Visiting Professor, Georgetown University,  
[db1537@georgetown.edu](mailto:db1537@georgetown.edu)

Convinced that social media is directly harming children, policymakers have started to introduce legislation that requires technology companies to be safe *by design* through “duty of care” provisions. Unlike regulations that focus on product safety, these bills incorporate technosolutionist logics into regulation by presuming that technology companies can remedy complex harms like mental health duress and bullying if their products were only designed better. In this paper, we unpack the theory of change at the center of the “duty of care” included in the “Kids Online Safety Act” (KOSA). We argue that techno-legal solutionism is both ineffective as a framework and, in the case of KOSA, potentially harmful to the young people it purports to help.

CCS CONCEPTS • Applied computing~Law, social and behavioral sciences~Law • Social and professional topics~Computing / technology policy~Government technology policy~Governmental regulations • Security and privacy~Human and societal aspects of security and privacy~Social aspects of security and privacy

**Additional Keywords and Phrases:** Online safety, children, public policy, solutions

**ACM Reference Format:** María P. Angel and danah boyd. 2024. Techno-legal Solutionism: Regulating Children’s Online Safety in the United States. In CSLAW’24: 3rd ACM Computer Science and Law Symposium, March 12–13, 2024, Boston, MA. ACM, Boston, MA, USA.

Future DOI: <https://doi.org/10.1145/3614407.3643705>

### 1 INTRODUCTION

Since the 1990s, the US Congress has experimented with different theories of change when introducing federal legislation that is concerned with children’s online safety and privacy. The Children’s Online Privacy Protection Act of 1998 (COPPA) requires technology platforms to seek parental permission before collecting data about children under the age of 13. This law attempted to regulate *access* with an eye towards enabling *parental control*. While many companies responded to COPPA by stating that their service is only for people over the age of 13 and requiring users to indicate their age upon signup, parents have consistently helped their children lie about their age [boyd et al. 2011]. Two other laws passed in the same time period – the Communications Decency Act (CDA) of 1998 and the Child Online Protection Act (COPA) of 1998 – focused more explicitly on regulating *content*, but they were legally challenged on First Amendment grounds and, except for Section 230 of the CDA, were declared unconstitutional or never enacted. In 2006, Congress attempted to restrict what websites children could *access* in schools and libraries with the Deleting Online Predators Act, but this effort was challenged by educators and librarians and the bill was not advanced [American Library Association 2006; Kribble 2008].

In 2021, former Facebook employee Frances Haugen leaked confidential documents to the Wall Street Journal. While these documents included a range of claims about malfeasance at Facebook, the most controversial revelations centered on the impact of social media use on teenage girls’ mental health [Wells et al. 2021]. Set within the context of Haugen’s claims and the “techlash” [Knight Foundation and Gallup 2020] that followed the 2016 US election, in 2022 policymakers began introducing another wave of kids’ online safety bills.

The United Kingdom (UK) led the way. In 2021 the UK introduced the Age-Appropriate Design Code, a statutory code of practice defining standards for the design of online services likely to be accessed by children. With the Online Safety Act of 2023, the UK also passed a law to protect children through a “duty of care” provision, which introduced a novel theory of intervention in this space. In short, the reasoning behind a “duty of care” provision is: if the *design* of social media is *causing* harm to children, then the design of social media must be regulated to prevent negative outcomes. This rationale has subsequently been taken up by proposals in the US, where the legal frameworks around privacy, speech, and parental rights are significantly different than in the UK. At the same time, this approach raises new questions about the validity of this theory of change and the efficacy of such an approach.

At the federal level in the US, this theory coalesced into the “Kids Online Safety Act” (KOSA), a bipartisan bill first introduced in February 2022 by Senators Richard Blumenthal and Marsha Blackburn. KOSA includes a “duty of care” framework that would require social media platforms to design their systems to prevent or mitigate a range of ambiguously defined social harms, including the “mental health disorders of a minor.” In 2023, after being re-introduced, KOSA began to gain traction, obtaining bipartisan support in a polarized Congress.

Both KOSA and many of the latest online safety bills take a media effects orientation in defining the problem and a technosolutionist orientation when calling to fix social ills by regulating the design of social media systems. Supporters tend to point to other examples where young people are restricted from consuming (addictive) substances, accessing (harmful) content, and engaging in certain (risky) activities to argue that social media is addictive, harmful, and risky. For example, they highlight how the US protects children “from drinking, from smoking, from driving. They can’t drive when they’re 12” [Lima-Strong 2023]. In defending regulations to influence the design of social media, advocates also point to the history of consumer product safety, such as regulations that require automobile manufacturers to implement seatbelts while separately requiring consumers to use them. “If this was childhood cancer or childhood car accidents, or if we had seen these significant changes anywhere else,” Utah’s governor Spencer Cox told the New York Times, “we would all be losing our minds about this” [Coaston 2023].

Indeed, KOSA includes some design requirements that are equivalent to those in the consumer product safety space, such as imposing certain design features (e.g., limit the automatic playing of media for minors). However, KOSA’s duty of care provision is different. It holds companies liable for failing to take reasonable measures to prevent or mitigate complex harms that experts have been trying to address for decades with mixed success, such as bullying and depression. Rooted in this framework is a media effects theory that unhealthy social dynamics and experiences are a direct outcome of and can be prevented by design decisions, rather than being shaped by and co-constructed alongside them. Moreover, this approach presumes that it is possible to measure the efficacy of implementing such design interventions vis-à-vis complex social dynamics.

In this paper, we argue that KOSA’s duty of care is rooted in a deterministic theory that we label “techno-legal solutionism.” When the law demands technosolutionism, it sets up a configuration that is unrealizable at best and, in some cases, explicitly harmful to the very population that needs protection. In order to unpack our theory of “techno-legal solutionism,” we analyze the “duty of care” provision of the Kids Online Safety Act (KOSA) to show how and why this approach will fail to achieve its stated goals. This is not to say that regulating the design of consumer products is not important and cannot play an important role in creating a healthier sociotechnical world. However, to achieve these lofty goals, regulations of design need to adhere closely to causality and be attentive to agency and structural arrangements, something that KOSA’s duty of care fails to do. As technological fixes usually do, KOSA’s duty of care ignores the complexity of the relationship between social media platforms and youth mental health, disregards uncertain effects of technology, naïvely assumes that engineering can rise above politics, and reinforces Big Tech’s technosolutionist

orientation while undermining ecological approaches. Efforts to drive design through moral panics and flawed deterministic logics can easily trigger a host of unintended consequences. When it comes to kids' safety, these consequences tend to be most acutely felt by those who are most vulnerable.

## 2 BACKGROUND

To analyze the proposed design-forward solution that we label techno-legal solutionism, we begin by shedding light on a range of intellectual lineages that ground our analysis. In this section, we briefly describe four intellectual frameworks that underly contemporary visions of requiring design interventions as a solution to addressing the perceived well-being problem of young people's use of social media.

### 2.1 Duty of care

Within the Western legal tradition, the notion of "duty of care" refers to the idea that individuals have a responsibility to take reasonable measures to avoid careless acts that could cause harm to others. The figure is present both in fiduciary and in tort law [Rhee 2013; Velasco 2014]. In both cases, the standard of care is objective: it isn't concerned with the duty holder's intent or capability, but rather "whether she succeeded in exercising the prudence that an ordinarily prudent person would have exercised under the circumstances" [Goldberg 2019].

Nevertheless, there are at least two ways in which fiduciary duties of care tend to be distinct from tort duties of care. First, unlike tort duties of care, fiduciary duties of care usually come along with a duty of loyalty (trustee's duty to act "in the best interest of the beneficiaries" and to refrain from self-dealing [Sitkoff 2019]) and a duty of confidentiality (trustee's duty to guard "the secrecy of information provided" [Whitt 2019]). Second, tort and fiduciary duties of care also differ in "the consequences, if any, that must flow from carelessness in order for a legal wrong to be committed, and for liability to attach" [Goldberg 2019]. A breach of fiduciary duties of care on its own can in many cases generate liability, without the existence of a resulting injury or harm [Goldberg 2019]. In contrast, since the common law negligence tort – where the tort duty of care is considered – is an injury-inclusive wrong, a plaintiff claiming the existence of a legal wrong should prove the existence of a duty, breach, a harm or injury, and a relation of causality (both *cause in fact* and *proximate cause*) [Berman and Bracci 2022].

Tort duties of care play a significant role in product liability cases where negligence is the basis for the complaint. According to American courts, "in the design, manufacture, and marketing of products, manufacturers have a duty of reasonable care to protect foreseeable victims from foreseeable risks of harm" [Owen 2022]. Fiduciary duties of care (and loyalty), in turn, have become relevant in recent years in the context of digital platforms. Various legal scholars have proposed that online service providers should be required to abide – in varying flexible levels – by fiduciary duties of care, confidentiality, and especially loyalty, with regard to their end users [Balkin 2020; Hartzog and Richards 2022a; Zittrain 2018]. And proposed bills in the US and abroad, such as the Data Care Act (2018), the Consumer Online Privacy Rights Act (2019), the American Data Privacy and Protection Act (2022), and the UK Online Safety Act (2023), have already attempted to include all or some of these types of duties [Hartzog and Richards 2022b].

In the version of KOSA that was introduced in Congress in May 2023, Section 3 began by requiring covered platforms to act "in the best interests of a user that the platform knows or reasonably should know is a minor." The inclusion of this defining element of a duty of loyalty – in addition to the framework of digital platforms regulation within which this bill was proposed – initially led us to infer that the duty of care that followed was closer to a fiduciary duty of care than to a tort law one. However, in the version of KOSA reported to the Senate on December 13, 2023, the duty of loyalty has been removed. Considering this, along with the Section's emphasis on harm prevention, we believe we may be facing a standard

of care for tort law, which violation might eventually prove negligence *per se* (if a court determines that “the statutory violation causes the type of harm the statute was intended to avoid, to a person within the class of persons the statute was intended to protect” [Dobbs et al. 2016]). It is important to note, though, that “although the legislature can and sometimes does create a duty of care to a new class of injured persons, the mere fact that a statute defines due care does not in and of itself create a duty enforceable by tort law” [Seventh Circuit. 2004].

In any case, in both possible scenarios the existence of a duty of care assumes a certain relationship in which one party has the power to harm others. However, in the case of children on social media sites, the origin of the harm to youth mental health is not clear cut: it may be the site itself, the users of the site, or a combination of both.

## 2.2 Technological determinism

The field of science and technology studies (STS) frequently explores the multiple ways in which policymakers, civil society organizations, industry representatives, journalists, and other stakeholders tend to treat technology qualities as either the cause of social outcomes or the solution to social problems [Wyatt 2023].

In 1967, physicist Alvin Weinberg posited that technology could provide shortcuts (“technological fixes”) to circumvent or reduce social problems to less formidable proportions [Weinberg 1967]. This framing both animated technology designers and triggered ire from critics who rejected the solutionist orientation entirely [Burns and Studer 1975; Oelschlaeger 1979]. Indeed, critics pejoratively labeled this orientation as “technological determinism,” lambasting approaches where “technology is conceptualized as an external agent that acts upon and changes society” [Baym 2015]. A subset took it one step further by describing the fantasy of a technological fix with a deterministic orientation: “technological solutionism” [Morozov 2013]. Technological solutionism describes a theory of change that posits that a social problem can be “solved” deterministically by a technological design. While the field of STS views technological solutionism as a fatally flawed orientation, technologists have doubled down on the technological fix, reclaiming this identity as “techno-optimism” [Andreessen 2023].

Social shaping theorists have made it clear that, even though technologies can *influence* outcomes by offering certain design possibilities and constraints – also referred to as affordances [Gaver 1991; Gibson 1997] – they cannot *determine* them. As Donald MacKenzie and Judy Wajcman explain in the introductory essay of their book *The Social Shaping of Technology*, “[a]s a simple cause-and-effect theory of historical change, technological determinism is at best an oversimplification. Changing technology will always be only one factor among many others: political, economic, cultural and so on.” [MacKenzie and Wajcman 2011]. Thus, even though it is true that technologies are not neutral [Latour 1988; Winner 1980], it is also true that their impact on society can vary, depending on the contexts where they are received and the practices and social arrangements that form around the artifacts [Lievrouw 2006].

## 2.3 Values in Design

The fields of informatics and human-computer interaction (HCI) have grappled with the intersection of ethics, values, and design [Centivany 2016; Shilton 2015]. Bringing ideas from philosophy and STS to the fore, Helen Nissenbaum began pushing technologists to orient around “values in design” starting in the 1990s [Nissenbaum 1998]. In parallel, Batya Friedman and her collaborators created “value sensitive design” as a methodology, arguing that both “moral and technical imagination can be brought to bear on the design of technology” [Friedman and Hendry 2019]. These design approaches often invited user participation to address issues like privacy and informed consent [Iversen et al. 2010].

Over time, values-in-design adherents began highlighting how practice and design can have complex interdependencies – “knots” – with policy [Jackson et al. 2014]. Meanwhile, legal scholars started turning to design as a site of potential

intervention. In building a framework for “lex informatica,” Joel Reidenberg argued that design choices impose rules on technical systems that can be just as effective as legal requirements [Reidenberg 1998]. Lawrence Lessig popularized this notion, building on it to argue that four forces – law, markets, social norms, and architecture (or code) – all play a configuring role in shaping the outcome of a piece of technology [Lessig 1999]. In the early 2010s, the “Privacy By Design” (PBD) framework was articulated by former Information and Privacy Commissioner for Ontario, Canada, Ann Cavoukian [Cavoukian 2010], followed by subsequent calls for PBD by other regulators [Federal Trade Commission (FTC) 2012; The European Parliament and the Council of the European Union 2016]. Since then, other legal scholars have argued about the importance of “shaping code” and “technology-forcing regulation” [Kesan and Shah 2005; Madison 2017], while researchers who do privacy work in HCI, design, and legal communities suggest to bring the breadth of HCI design approaches into PBD [Wong and Mulligan 2019].

While “values in design” advocates believe that both design and policy interventions play a role in shaping sociotechnical practices and outcomes, they do not make deterministic arguments. However, their social constructivist orientation is often overlooked and misinterpreted by technosolutionists.

#### 2.4 Youth, Media, and Moral Panics

Since the creation of the term “adolescence” in the late 19<sup>th</sup> century, experts have attempted to differentiate those in the stage between childhood and adulthood [Hine 1999]. The first wave of explanations centered on biological versus cultural causes of adolescent behavior [Hall 1904; Mead 1950]. Anxieties about the moral well-being of teenagers began to take hold; these were labeled “moral panics” [Cohen 2011]. By the mid-20<sup>th</sup> century, new forms of media – from rock ‘n roll to comic books to television – were blamed for problems with youth [Springhall 1998]. This gave rise to a theory of “media effects” which claimed that young people’s problems are caused by their interactions with media [Gauntlett 1995; Livingstone 1996], which reemerged as a new moral panic in the 1990s when teenagers started accessing the internet. As David Buckingham notes, “[t]hese arguments often involve a form of scapegoating. Like television, the computer becomes a convenient bad object, onto which we can displace a whole range of worries and frustrations” [Buckingham 2006].

Early biological explanations for youth behavior have also shapeshifted over the century, integrating neurological ideas and hormonal theories into a framework of cognitive deprivation, which suggested that young people are cognitively vulnerable until they are in their mid-20s [Johnson et al. 2009]. Cultural theorists reject this deprivation frame, arguing that depriving young people of power until their brains develop prevents their maturation [Corsaro 2015; Qvortrup 2014]. At the same time, new psychological theories have emerged. For example, psychologists started approaching child development through an ecological theory, positing that many factors helped shape young people’s development [Bronfenbrenner 1981].

Divergent ways of understanding young people shape educational pedagogy, policymaking, mental health, and parenting. They also shape how parents, teachers, and scholars see the intersection of technology and young people’s behavior and experiences. No youth expert denies national surveys that show that sizable numbers of young people are struggling with depression, anxiety, or other mental health issues. Where disagreements emerge are around what the root causes of these challenges are and what the role of technology is. For some, technology is the *cause* of young people’s problems; for others, it’s the *symptom*. For example, psychologists like Jean Twenge and Jonathan Haidt [Haidt 2024; Twenge 2017; Twenge 2023a] are adamant that social media and mobile phones are directly *causing* harm to young people. Conversely, technology studies scholar danah boyd argues that social media renders young people’s struggles *visible* to broader audiences [boyd 2014].

### 3 KOSA’S DUTY OF CARE

While there are many design-based provisions in the Kids Online Safety Act (KOSA), for the purposes of this paper we want to center our analysis on its Section 3 – the “duty of care” provision. The language in the Act, as reported to the Senate on December 13, 2023, is as follows:

“SEC. 3. DUTY OF CARE.

(a) Prevention Of Harm To Minors.—A covered platform shall take reasonable measures in the design and operation of any product, service, or feature that the covered platform knows is used by minors to prevent and mitigate the following harms to minors:

- (1) Consistent with evidence-informed medical information, the following mental health disorders: anxiety, depression, eating disorders, substance use disorders, and suicidal behaviors.
- (2) Patterns of use that indicate or encourage addiction-like behaviors.
- (3) Physical violence, online bullying, and harassment of the minor.
- (4) Sexual exploitation and abuse.
- (5) Promotion and marketing of narcotic drugs (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802)), tobacco products, gambling, or alcohol.
- (6) Predatory, unfair, or deceptive marketing practices, or other financial harms.

(b) Limitation.—Nothing in subsection (a) shall be construed to require a covered platform to prevent or preclude—

- (1) any minor from deliberately and independently searching for, or specifically requesting, content; or
- (2) the covered platform or individuals on the platform from providing resources for the prevention or mitigation of the harms described in subsection (a), including evidence-informed information and clinical resources.”

[Blumenthal 2023]

What is implicit in this Section are presumptions that “platforms” directly harm young people and that a technological fix is possible. Before we turn to analyze how these logics are unfolding – and where they are flawed – we must first analyze the actual language policymakers use.

Notably, the authors of this bill do not explicitly reference types of *content* (the target of earlier bills). Instead, they focus on *conduct* (reasonable measures in the design and operation of any product, service, or feature) and *outcomes* (prevention or mitigation of a list of harms). Thus, at first glance, it appears that Section 3’s language was influenced by the “safety duties protecting children” included in the UK’s Online Safety Act (OSA), which require providers of user-to-user services and providers of search services to “*take or use proportionate measures relating to the design or operation of the service,*” to effectively *mitigate and manage* the risks of harms identified in the most recent children’s risk assessment of the service [UK Parliament 2023].

However, OSA’s duty of care differs from the one proposed in KOSA in at least three ways. First, OSA does not include a list of social harms, rather leaving it up to the services to identify them through their children’s risk assessment. Second, OSA is more specific than KOSA about the possible measures relating to the design or operation of the service, providing a list of areas in which those measures can take place (including regulatory compliance and risk management arrangements, design of functionalities, algorithms, and other features, and staff policies and practices). Finally, OSA was discussed and passed in a country where the legal framework governing free speech differs significantly from that developed around the US’s First Amendment. Therefore, more than a copy, KOSA’s Section 3 may be considered a watered-down version of OSA’s proposed duty of care.

KOSA’s duty of care can also be distinguished from other “duties of care” invoked in other proposed US bills. Senator Brian Schatz’s proposed Data Care Act, for example, establishes a duty of care that requires online service providers to “(A) reasonably secure individual identifying data from *unauthorized access*; and (B) (...), promptly inform an end user of any breach of the duty (...) with respect to sensitive data of that end user” [Schatz 2021]. KOSA’s duty of care stands in stark contrast to this example, because KOSA has no clear measurable outcome, let alone a known framework for achieving such. Unlike unauthorized access, which is contained in the system, harms such as anxiety or depression are complex social and psychological problems, whose occurrence is external to the system, hard to measure, and challenging to address.

The duty of care contained in KOSA’s Section 3 is also significantly different from *explicit* design requirements included in other sections of KOSA (e.g., Section 4) and in bills like Senator Markey’s Kids Internet Design and Safety Act (KIDS Act). Unlike Section 3, Section 4 of KOSA (“Safeguards for minors”) explicitly requires platforms to limit the automatic playing of media for minors and restrict the sharing of their location with other platform users. Likewise, Section 4 of the proposed KIDS Act prohibits covered platforms to nudge individuals under the age of 16 not actively using the platform to engage with it, and to display them the quantity of positive engagement or feedback received by them from other users [Markey 2021]. This type of *explicit* design requirements (also popularly referred to as “age-appropriate design requirements”) shares important characteristics with the consumer product safety frameworks alluded to by proponents of online safety bills, where specific design features are imposed (e.g., visible warnings in tobacco packages; integral lap and shoulder seatbelts in vehicles), and certain others are prohibited (e.g. ban of tobacco brand sponsorship of sports events) in order to protect public health and safety.

KOSA’s duty of care is different from these *explicit* design requirements and consumer product safety frameworks in at least two ways. First, except for § 3(a)(5) – the restriction on advertising certain products – Section 3 does not state the specific design requirements that should be avoided or implemented. Instead, it focuses on *outcomes*. This would be akin to requiring car manufacturers to ensure that drivers are never distracted by third parties and that all accidents are avoided rather than requiring them to implement seatbelts.

Second, in contrast to Section 4 of the proposed KIDS Act and to the Family Smoking Prevention and Tobacco Control Act – which grant authority to the FTC and the FDA, respectively, to regulate those explicit design requirements and prohibitions –, KOSA’s duty of care provision does not authorize an agency to promulgate *rules* in accordance with 5 U.S. Code § 553 to implement this section. Instead, KOSA mandates the FTC to issue non-binding *guidance* (see: 10(a)(d)) regarding issues that, although related, are not explicitly focused on defining what the law understands by “reasonable measures in the design and operation of any product, service, or feature.” For this specific purpose, in turn, it orders the Secretary of Commerce to establish and convene the Kids Online Safety Council, which among other tasks, will be in charge of recommending measures and methods for assessing, preventing, and mitigating harms to minors online. Until this council starts to recommend measures, it will be up to the social media platforms and the Attorneys General to determine what those measures should look like.

#### 4 FRAMING THE PROBLEM

In analyzing the rhetoric that policymakers put forward to explain the need for this bill, we have concluded that the logic shaping this debate is the following: Social media platforms are the direct (and primary) cause of various problems that youth face; fixing technology’s design is the solution. Furthermore, policymakers believe it is incumbent on them to force technology companies to design their systems in a certain way because they lack the incentives to do so themselves. In unpacking these logics, we want to examine how policymakers frame their thinking.

#### 4.1 Social media is to blame

At a congressional hearing convened in September 2021, Senator Richard Blumenthal – who would later become one of the co-sponsors of KOSA – asserted: “Facebook knows the destructive consequences that Instagram’s design and algorithms are having on our young people and our society, but it has routinely prioritized its own rapid growth over basic safety for our children” [Lima-Strong 2021]. When announcing the re-introduction of KOSA in May 2023, Senator Blumenthal and his co-sponsor Senator Marsha Blackburn appeared to be certain about the existence of a causal relationship between the design of social media platforms and social harms: “As Congressional hearings, media reports, academic research, and heartbreaking stories from families have repeatedly shown, online platforms can have a harmful effect on children and teens: fostering body image issues, creating addictive use, promoting products that are dangerous for young audiences, and fueling bullying and other destructive behaviors” [Blumenthal and Blackburn 2023].

In building their claims, policymakers turn to government agencies for data. In February 2023, the Centers for Disease Control and Prevention (CDC) published a report showcasing the rise of mental health crises, referencing social media as a site where harms might happen [Centers for Disease Control and Prevention 2023]. A few months later, in May 2023, the U.S. Surgeon General issued an Advisory on Social Media and Youth Mental Health. The Advisory offers a range of evidence concerning the impacts of social media on young people, both positive and negative, before concluding with, “the current body of evidence indicates that while social media may have benefits for some children and adolescents, there are ample indicators that social media can also have a profound risk of harm to the mental health and well-being of children and adolescents. At this time, we do not yet have enough evidence to determine if social media is sufficiently safe for children and adolescents” [U.S. Surgeon General 2023]. Notably, even though reports like this do not make conclusive causal claims, they do shift the terms of the discussion away from questioning whether social media is conclusively harmful to whether it is conclusively safe.

Although analyses of research tend to be more nuanced, causal media effects claims are widespread in public discourse. Frances Haugen, the whistleblower who revealed internal survey research where young Instagram users claimed that social media was bad for their mental health, has herself testified to Congress that she believes that “Facebook’s products harm children” [Haugen 2021]. Civil society organizations also reinforce causal claims. The Center for Digital Democracy, for instance, has argued that “social media platforms have exacerbated the mental health crisis among children and teens fostering body image issues, creating addiction-like use, promoting products that are dangerous for young audiences, and fueling destructive bullying” [Center For Digital Democracy 2023]. Similarly, Common Sense Media contends that social media companies should be held liable “for causing children to die from fentanyl overdoses, choking challenges, and suicide, to develop eating disorders, and to become addicted to social media” [Common Sense Media 2023].

#### 4.2 Technology as the site of fix

Policymakers not only argue that social media platforms are the site of the problem; they also frame technology as the site of the fix. As KOSA’s Section 3 makes evident, their rationale appears to go as follows: if design features are the problem, requiring good design can make the harms go away.

This thinking is replicated by “Design with Kids in Mind,” a coalition of civil society and advocacy groups who are “committed to the wellbeing of children and online users across the United States.” This group argues that the United States needs a “design code” because “[b]y requiring sites to make the best interests of children a primary design consideration, we can ensure digital media works for, instead of against, children and families” [Designed With Kids in Mind]. In 2022, this coalition teamed up with other organizations to petition the FTC to conduct rulemaking that would prohibit the use of design features that harm children [Center for Digital Democracy et al. 2022]. This rationale is also



reflected in the Principles for Enhancing Competition and Tech Platform Accountability announced in September 2022 by the Biden-Harris Administration. According to the White House, one of the core principles for tech platform accountability should be to “[p]rotect our kids by putting in place even stronger privacy and online protections for them, including prioritizing safety by design standards and practices for online platforms, products, and services” [The White House 2023].

The arguments made by these stakeholders echo policymakers and advocates on the other side of the Atlantic. As early as January 2020, the United Kingdom published the Age-Appropriate Design Code, also known as the Children's Code. The code “addresses how to design data protection safeguards into online services to ensure they are appropriate for use by, and meet the development needs of, children” [Information Commissioner’s Office 2022]. Inspired by this new model, at least thirteen kids’ safety bills have been introduced in the US between 2021-2023. Many of them require design-based interventions, ranging from enabling certain protections by default and disabling addictive product features – such as in the KIDS Act – to designing for societal outcomes – as is KOSA’s duty of care.

## 5 LOGICAL FLAWS MAKE FOR PROBLEMATIC POLICYMAKING

Policymakers’ rhetoric suggests that they’re anchoring their proposals in a values-in-design framework. However, the legislative approach that they have taken with KOSA’s duty of care appears to be more appropriately framed as a “technological fix” to a moral panic. Policymakers’ visions of social media platforms and their design features “as causal agents, entering societies as active forces of change that humans have little power to resist” [Baym 2015] reveals their deterministic orientation towards technology. Likewise, their faith in the platforms’ design interventions to prevent or mitigate social harms reflects a techno-solutionist belief that “social problems can be circumvented or at least reduced to less formidable proportions by the application of the Technological Fix” [Weinberg 1967].

As the history of technology repeatedly shows us, techno-deterministic and techno-solutionist approaches are unlikely to achieve their purported goals. Such efforts repeatedly stumble against the flaws and limitations of these theories of social change while triggering a range of other outcomes [Morozov 2013; Sætra 2023; Selbst et al. 2019]. However, the fact that a technological fix has been baked into a duty of care, such as the one included in KOSA’s Section 3, makes matters even worse. When Lessig first argued that “code is law,” he intended to signal how the design of software plays a regulating role in making certain outcomes more or less likely [Lessig 1999]. One mistake that policymakers have made is reinterpreting his words to embrace a techno-deterministic vision that code can act as proxy for law in *dictating* futures. Rather than solving the complex social issues that KOSA intends to tackle, this techno-legal solutionism—a coordinated but ineffective effort to bake technological determinism and solutionism into the law—will result in an impossible configuration. In essence, tech companies will be required *by law* to design their systems for social outcomes they cannot possibly control.

While proponents argue that this law would at least incentivize companies to *try* to design towards these goals, there is no evidence that such a framing will actually help vulnerable youth or result in better design. More likely, it will incentivize corporate performances of safety, reinforce tech companies’ technosolutionist logics, divert resources from other evidence-backed approaches, and empower politicians to challenge companies over highly politicized topics like gender affirming care, abortion, and sexuality.

### 5.1 A technological fix ignores the complexity of the relationship between social media platforms and youth mental health

KOSA’s duty of care provision is predicated on the assertion that social media platforms are the cause of the listed harms. Yet, one question regularly hangs in the air: what is the impact of social media use on young people’s mental health? While

the argument that social media is a central cause of harms to minors is pervasive among activists, advocates, and policymakers, researchers who have been working to understand mental health challenges among youth are far more mixed about the “media effects” claims undergirding these arguments [George et al. 2020; Vuorre and Przybylski 2023]. In short, the factors that shape mental health are multiple and complex, and many experts question how much (if any) of a role technology plays in affecting the outcomes of young people.

Many youth experts repeatedly highlight how the negative experiences that youth face are more ecological in nature. Over the years, research has shown how many of the social problems that tend to emerge online – such as cyberbullying or harassment – have deep roots in offline social dynamics [Hinduja and Patchin 2014; Jones et al. 2013; Smith and Livingstone 2017]. Multiple studies have provided evidence of how, for example, substance use or a poor bond with caregivers is associated with online victimization [Ybarra and Mitchell 2007]; children experiencing problems offline, such as physical and sexual abuse, are most at risk online [Mitchell et al. 2007]; and the characteristics of youth who report online victimization are similar to those of youth who report offline victimization [Finkelhor 2008].

While cyberbullying is a problem, bullying is also endemic in schools [Englander 2020; Hinduja and Patchin 2014] that, at least in theory, are incentivized to stop it. Children face violence at home, in church, and at school. By observing youth in situ and interviewing them about their experiences using technology, danah boyd came to the conclusion that technology is rarely the cause of teen’s issues, but it is certainly the place they turn to when they are struggling [boyd 2014]. She argues that what makes social media notable is that it makes youth mental health problems *visible*.

Still, the argument that social media causes mental health problems is quite persuasive. After Facebook’s internal marketing research was leaked by Frances Haugen, journalists who attempted to understand the company’s internal studies found independent research that shows no correlation between young people’s self-perception of mental health harms and clinical outcomes [George et al. 2020]. According to psychologist Candice Odgers, one of the problems with this internal study is that the methodology relies exclusively on teens’ self-reporting; her work shows that self-response tends to have little correlation with other measures of mental health struggles [Kamenetz 2021].

Among psychologists, there are divergent views about the harms of technology. Journalist Ezra Klein attempted to unpack these scholarly disagreements through a pair of interviews. Klein first interviewed Jean Twenge who is adamant that social media is to blame for negative mental health outcomes among youth [Twenge 2023a; Twenge 2017]. Klein challenged Twenge to defend her causal claims; she flagged both correlative and experimental data that left Klein unconvinced about causality [Twenge 2023b]. Klein then interviewed Lisa Damour who refuted Twenge’s claims and highlighted studies showing both positive and negative outcomes associated with social media use alongside a more ecological approach to the mental health of young people [Damour 2023].

As public pronouncements of causal harms escalated and psychologists debated conflicting studies, the National Academies of Science, Engineering, and Medicine constructed an independent panel to evaluate the state of known research. This meta-analysis provided evidence of both positive and negative outcomes correlated with social media use and rejected the strong causal claims common in public discussions [Galea et al. 2023].

## **5.2 Technological fixes disregard uncertain effects**

Protecting young people from experiencing the negative harms listed in bills like KOSA is universally desirable. For those who defend KOSA, the question on the table is whether or not tech companies have the *will* to do so, not whether or they have the *ability* to do it. Many proponents of KOSA argue that if there’s a forcible will, companies will find a way. This approach, nevertheless, gives no consideration to the uncertain effects of technological fixes.

Technologies can indeed contain (and can be made to contain) political properties. As Langdon Winner explains, there are “instances in which the arrangement of a specific technical device or system becomes a way of settling an issue in a particular community” [Winner 1980]. In those situations, designers embed certain values into the design and operation of technologies, thereby constructing certain possibilities and constraints into the design.

However, as media studies scholar Tarleton Gillespie rightly points out, “technologies may have politics, but those politics are not easily imposed” [Gillespie 2007]. While designers and engineers can configure the future user by embedding constraints into technology products [Woolgar 1991], users have their own “decoding” [Mackay et al. 2000] to do, defining the different uses and social valence of the technology in their hands. In that sense – legal scholar Ari Waldman points out – “the technology company does not always have the last word in design” [Waldman 2019].

Even if – in compliance with KOSA – technology companies are able to design social media platforms and their features in such a way that children and youth are not exposed to certain content and are restricted from engaging in certain online activities and interactions (which is also a difficult task and carries its own First Amendment problems [N.D. Cal. 2023]), companies will never be able to precisely control how the “allowed” behaviors of content creators, advertisers, parents, adult users, and children themselves affect children’s experience online and their well-being. Put another way, social media platforms cannot design to ensure that children are included by their peers, that information about natural disasters or history does not cause anxiety, or that peer pressures don’t trigger body dysmorphia. In fact, “intervening forces” of this type complicate even more the causal relationship that KOSA’s sponsors and supporters tend to allege, and which must be usually proven in court through both *cause in fact* (actual cause of the victim’s injuries) and *proximate cause* (foreseeability of harm or intervening forces) [Berman and Bracci 2022].

When mandating social media platforms to design for positive outcomes, KOSA’s co-sponsors seem to disregard this contingency of technology [Lievrouw 2006] – the “emergent character” of the digital technologies’ consequences for social life [Baym 2015]. While companies can be compelled to not do certain things (e.g., show certain advertisements), requiring that they create systems that result in positive societal outcomes presumes they can and should have complete control over *social* behaviors. As a result, KOSA sets up unrealistic expectations about what design can really do for children.

### 5.3 A technological fix naïvely assumes that engineering can rise above politics

In a context in which LGBTQ+ and racial justice books are being banned in schools and trigger warnings are front and center in colleges, there is political power in determining what causes harm to young people (which is also necessary in order to enforce the “duty of care”). This raises significant questions about *who* has the power to determine what is negatively impacting young people.

The potential for abuse has triggered alarm among the LGBTQ+ community, which is perhaps the most vocal opponent of KOSA [Fight for the Future 2023]. Activists have raised alarms over KOSA, in no small part because the Republican co-sponsor of KOSA has argued that the most important issue for conservatives in 2024 is to protect minors from “the transgender” and stated that she is sponsoring KOSA to protect minors from being “indoctrinated” [Blackburn 2023]. LGBTQ+ activists are concerned that KOSA will be either used by politically motivated attorneys general to explicitly target companies over LGBTQ+ content or used by companies to justify removal of LGBTQ+ content for fear of being held liable [Philips 2023]. They have good reason to be concerned; even libraries are facing significant scrutiny for making LGBTQ+ information available [Natanson 2023].

As James E. Krier & Clayton P. Gillette aptly pointed out, “[t]he disservice of technological optimism is its implicit, unexamined claim that engineering can rise above politics” [Krier and Gillette 1985]. If KOSA is passed, uncertainty over how and what harm is caused will probably cause political blocs to define those terms however they want. In particular,

advocates who oppose KOSA worry that companies' efforts to address these problems will quickly become politicized in harmful ways.

This is precisely what has happened in another arena of content moderation. After the 2016 US election, social media companies faced significant pressure to address media manipulation and disinformation [Marwick and Lewis 2017]. In response to the reputational threats, companies began working with a range of stakeholders and designing interventions to address the “misinformation” and “fake news” problem [Mosseri 2017]. At the same time, government agencies in both the Trump and Biden Administrations began coordinating with tech companies to address disinformation in arenas related to national security, fair elections, and public health. While disinformation experts argue over whether or not these interventions were effective, there is little doubt that they were polarizing. In response to these efforts, a network of opponents filed lawsuit against both the government and researchers. While litigation in *Missouri v. Biden* is ongoing, the response to the litigation by both companies and the federal government was to end their collaboration in most cases [Roth 2023].

Like the issues raised in KOSA, the issues raised in the disinformation space sit at the intersection between *content* and negative social *outcomes*. And, similarly, the desired outcomes appeared shared while obscuring the political agendas of different actors. However, there was never a shared sense of what constituted “disinformation,” creating an opening for divergent actors to redefine the term based on their own agendas. Given the impossibility of determining what constitutes “disinformation” – let alone creating the conditions to adjudicate such information – it is hard to imagine how technology companies or government agencies are going to effectively assess what information causes anxiety or depression.

#### **5.4 A technological fix reinforces Big Tech’s technosolutionist orientation while undermining ecological approaches**

Ironically, by calling on technology companies to improve their designs to prevent negative outcomes, policymakers are reinforcing the deterministic and solutionistic rhetoric that makes the technology industry toxic in the first place. The technology industry already justifies its disruptive activities as valuable for “solving” social problems, only to repeatedly produce technologies that trigger a range of unimagined positive and negative outcomes [Noble 2018; Vaidhyathan 2012]. Facebook promised to “bring the world closer together.” Beyond “don’t be evil,” Google promised “to organize the world’s information and make it universally accessible and useful.” Twitter (now X) vowed “to give everyone the power to create and share ideas and information instantly, without barriers.” These lofty ideals are visionary, but none contend with how the design of their systems have been leveraged by people for constructive and destructive uses, how usefulness is contextual, or how one person’s freedoms can become barriers for others. In short, what people do with a given technology is not determined by the design alone but by the choices that people make in leveraging these tools.

Policymakers’ embrace of this technosalvation ideology—their “overconfident beliefs in the efficacy of technology” [Gifford 2011]—can serve as a distraction. As expressed by Evgeny Morozov when referring to the dangers of solutionism, “[i]n promising almost immediate and much cheaper results, [quick fixes] (...) can easily undermine support for more ambitious, more intellectually stimulating, but also more demanding reform projects” [Morozov 2013].

Like technology scholars who argue that technological fixes often fail because of broader ecological dynamics [Selbst et al. 2019], the field of youth studies is rife with debates about how important it is to consider the broader social context when grappling with the mental health of youth [Galea et al. 2023]. From an ecological vantage point, attention must be first and foremost given to the *social* problems of abuse, addiction, poverty, social inequality, etc. that sit at the root of many of the negative outcomes that legislators want to prevent or mitigate. As good as the design fixes implemented by social media platforms in response to KOSA’s duty of care can possibly be, they will always need to be complemented by

social, cultural, and institutional interventions. For example, universal access to mental health care and/or widespread implementation of social-emotional learning programs may more directly address some of the articulated harms given clear evidence of impact [Durlak et al. 2022; Lang 2013].

## 6 CONCLUSION

“Technopanics” over young people’s use of social media have been happening since their inception [boyd 2014; Marwick 2008]. Although literature reviews repeatedly show that the link between social media and youth mental health is complex [Galea et al. 2023], policymakers have focused on fixing technology to address mental health issues. It is all too tempting to see social media and other technologies as the cause of societal ills because they are visible there. Likewise, in a world where representatives of the technology industry are frequently marketing their wares as the solution to the world’s problems, it is appealing to demand that they design their technologies to solve societal struggles. Finally, part of what makes regulating technology “common sense” is that policymakers believe that no harm can come from these proposals.

Yet, this call to action is both naïve and rife for abuse. In the context of the mental health crisis that young people are facing, it obscures the ecological facets of the problem while also presuming that technology companies have the ability to solve complex social problems. The very act of creating a space where young people can connect with peers and information is bound to create the conditions for peer conflict, anxiety, and mental duress. The same is true of schools, libraries, churches, and any site where young people gather. And, as many LGBTQ+ activists have consistently highlighted since KOSA was first introduced [Fight for the Future 2023; Center for Democracy & Technology 2022], vulnerable youth can indeed be harmed through these laws.

Legislators are right to demand that social media companies stop using manipulative design to exploit the public’s decisional vulnerabilities and encourage data sharing [Calo 2014; Spencer 2020; Susser et al. 2019]. Just as they have done with other forms of media, policymakers can and should grapple with what kinds of advertising should be permitted [Nott 2020; Sconyers 2018]. Policymakers should consider what might constitute a “digital seatbelt” and mandate that. However, if policymakers actually want to help young people with the social struggles they face, they must take an ecological approach to an ecological problem. There is no quick fix. Holding technology companies liable for the well-being of young people is politically appealing, but it will not help vulnerable youth. Instead, this legal theory reinforces the flawed technosolutionist logics of the technology industry.

## REFERENCES

- American Library Association. 2006. ALA Opposes “Deleting Online Predators Act.” *News and Press Center*. Retrieved December 21, 2023 from <https://www.ala.org/news/news/pressreleases2006/may2006/dopa06>
- Marc Andreessen. 2023. The Techno-Optimist Manifesto. *Andreessen Horowitz*. Retrieved December 21, 2023 from <https://a16z.com/the-techno-optimist-manifesto/>
- Jack M. Balkin. 2020. The Fiduciary Model of Privacy. *Harv. Law Rev. Forum* 134, 9 (October 2020), 11–33.
- Nancy K. Baym. 2015. *Personal Connections in the Digital Age*. Polity, Cambridge, UK; Malden, MA.
- Sara J. Berman and Steven J. Bracci. 2022. *Step-by-Step Guide to Torts*. West Academic Publishing.

Marsha Blackburn. 2023. Sen. Marsha Blackburn's Top Priority is Social Media. Here's Why. Retrieved October 10, 2023 from <https://www.youtube.com/watch?v=jg21OdmUj1g>

Richard Blumenthal. 2023. *Kids Online Safety Act of 2023*. Retrieved January 5, 2024 from <https://www.congress.gov/bill/118th-congress/senate-bill/1409>

Richard Blumenthal and Marsha Blackburn. 2023. The Kids Online Safety Act of 2023 One Pager. Retrieved from <https://www.blackburn.senate.gov/services/files/C11691AB-E092-4F66-9898-4AE8E74C0024>

danah boyd. 2014. *It's Complicated: The Social Lives of Networked Teens*. Yale University Press.

danah boyd, Eszter Hargittai, Jason Schultz, and John Palfrey. 2011. Why parents help their children lie to Facebook about age: Unintended consequences of the "Children's Online Privacy Protection Act." *First Monday* 16, 11 (November 2011).

Urie Bronfenbrenner. 1981. *The Ecology of Human Development. Experiments by Nature and Design*. Harvard University Press.

David Buckingham. 2006. Children and New Media. In *The Handbook of New Media. Updated Student Edition*, Leah A Lievrouw and Sonia Livingstone (eds.). SAGE.

Eugene M. Burns and Kenneth E. Studer. 1975. Reflections on Alvin M. Weinberg: a case study on the social foundations of science policy. *Res. Policy* 4, 1 (March 1975), 28–44. [https://doi.org/10.1016/0048-7333\(75\)90009-8](https://doi.org/10.1016/0048-7333(75)90009-8)

Ryan Calo. 2014. Digital Market Manipulation. *George Wash. Law Rev.* 82, (2014), 995–1051.

Ann Cavoukian. 2010. *Privacy by design: The 7 foundational principles. Implementation and mapping of fair information practices. Technical Report*. Information and Privacy Commissioner of Ontario. Retrieved from [https://iab.org/wp-content/IAB-uploads/2011/03/fred\\_carter.pdf](https://iab.org/wp-content/IAB-uploads/2011/03/fred_carter.pdf)

Center for Democracy & Technology. 2022. Coalition Letter on Privacy and Free Expression Threats in Kids Online Safety Act. Retrieved January 4, 2024 from <https://cdt.org/wp-content/uploads/2022/11/Coalition-letter-opposing-Kids-Online-Safety-Act-28-Nov-PM.pdf>

Center For Digital Democracy. 2023. The Kids Online Safety Act: Protecting LGBTQ+ Children & Adolescents Online - How changes to the Kids Online Safety Act will protect LGBTQ+ youth. *Center For Digital Democracy*. Retrieved October 10, 2023 from <https://democraticmedia.org/publishings/the-kids-online-safety-act-protecting-lgbtq-children-adolescents-online-how-changes-to-the-kids-online-safety-act-will-protect-lgbtq-youth>

Center for Digital Democracy, Fairplay, and Others. 2022. Petition for Rulemaking of the Center for Digital Democracy, Fairplay, et al. Retrieved October 10, 2023 from <https://www.federalregister.gov/documents/2022/12/02/2022-26254/petition-for-rulemaking-of-the-center-for-digital-democracy-fairplay-et-al#:~:text=This%20petition%20asks%20the%20Commission,in%20connection%20with%20internet%20services.>

Centers for Disease Control and Prevention. 2023. *Youth Risk Behavior Survey Data Summary & Trends Report: 2011-2021*. Centers for Disease Control and Prevention. Retrieved from [https://www.cdc.gov/healthyyouth/data/yrbs/pdf/YRBS\\_Data-Summary-Trends\\_Report2023\\_508.pdf](https://www.cdc.gov/healthyyouth/data/yrbs/pdf/YRBS_Data-Summary-Trends_Report2023_508.pdf)

Alissa Centivany. 2016. Policy as Embedded Generativity: A Case Study of the Emergence and Evolution of HathiTrust. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*, February 27, 2016, San Francisco California USA. ACM, San Francisco California USA, 926–940. <https://doi.org/10.1145/2818048.2820069>

Jane Coaston. 2023. The Republican Governor of Utah Wants to Spare Kids from Their Phones. *The New York Times*. Retrieved October 9, 2023 from <https://www.nytimes.com/2023/07/11/opinion/spencer-cox-social-media-utah.html>

Stanley Cohen. 2011. *Folk devils and moral panics: the creation of the Mods and Rockers* (First publ. in Routledge classics ed.). Routledge, Abingdon, Oxon New York.

Common Sense Media. 2023. Child Advocacy Organizations Pledge Support for Landmark California Bill That Would Protect Kids from Most Common and Dangerous Online Harms. *Common Sense Media*. Retrieved October 10, 2023 from <https://www.commonsensemedia.org/press-releases/child-advocacy-organizations-pledge-support-for-landmark-california-bill-that-would-protect-kids-from>

William A. Corsaro. 2015. *The Sociology of Childhood* (Fourth Edition ed.). 55 City Road, London. <https://doi.org/10.4135/9781483399027>

Lisa Damour. 2023. Transcript: Ezra Klein Interviews Lisa Damour. Retrieved October 10, 2023 from <https://www.nytimes.com/2023/05/23/podcasts/ezra-klein-podcast-transcript-lisa-damour.html>

Designed With Kids in Mind. Why we need a design code. *Designed with Kids in Mind*. Retrieved October 10, 2023 from <https://designedwithkidsinmind.us/why/>

Dan B. Dobbs, Paul T. Hayden, and Ellen M. Bublick. 2016. *Hornbook on Torts* (2nd ed.). West Academic Publishing.

Joseph A. Durlak, Joseph L. Mahoney, and Alaina E. Boyle. 2022. What we know, and what we need to find out about universal, school-based social and emotional learning programs for children and adolescents: A review of meta-analyses and directions for future research. *Psychol. Bull.* 148, 11–12 (2022), 765–782. <https://doi.org/10.1037/bul0000383>

Elizabeth K. Englander. 2020. *25 Myths About Bullying and Cyberbullying*. John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118747957.fmatter>

Federal Trade Commission (FTC). 2012. *Protecting Consumer in an Era of Rapid Change: Recommendations for businesses and policymakers*. Retrieved from <https://www.ftc.gov/reports/protecting-consumer-privacy-era-rapid-change-recommendations-businesses-policymakers>

Fight for the Future. 2023. Open letter from parents of trans and gender expansive kids: KOSA would make our kids less safe. Retrieved October 10, 2023 from <https://transparentletter.com>

David Finkelhor. 2008. *Childhood victimization: violence, crime and abuse in the lives of young people*. Oxford University Press.

Batya Friedman and David G. Hendry. 2019. *Value Sensitive Design. Shaping Technology with Moral Imagination*. MIT Press.

Sandro Galea, Gillian J. Buckley, Alexis Wojtowicz, Committee on the Impact of Social Media on Adolescent Health, Board on Population Health and Public Health Practice, Health and Medicine Division, and National Academies of Sciences, Engineering, and Medicine. 2023. *Social Media and Adolescent Health*. National Academies of Sciences, Engineering, and Medicine. <https://doi.org/10.17226/27396>

David Gauntlett. 1995. *Moving Experiences: Understanding Television's Influences and Effects*. John Libbey.

- William W. Gaver. 1991. Technology affordances. In *Proceedings of the SIGCHI conference on Human factors in computing systems Reaching through technology - CHI '91*, 1991, New Orleans, Louisiana, United States. ACM Press, New Orleans, Louisiana, United States, 79–84. . <https://doi.org/10.1145/108844.108856>
- Madeleine J. George, Michaeline R. Jensen, Michael A. Russell, Anna Gassman-Pines, William E. Copeland, Rick H. Hoyle, and Candice L. Odgers. 2020. Young Adolescents' Digital Technology Use, Perceived Impairments, and Well-Being in a Representative Sample. *J. Pediatr.* 219, (April 2020), 180–187. <https://doi.org/10.1016/j.jpeds.2019.12.002>
- James J. Gibson. 1997. The Theory of Affordances. In *Perceiving, Acting and Knowing: Toward an Ecological Psychology*, Robert Shaw and John Bransford (eds.). Lawrence Erlbaum Associates, Inc.
- Robert Gifford. 2011. The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *Am. Psychol.* 66, 4 (2011), 290–302. <https://doi.org/10.1037/a0023566>
- Tarleton Gillespie. 2007. *Wired Shut: Copyright and the Shape of Digital Culture*. MIT Press.
- John C. P. Goldberg. 2019. The Fiduciary Duty of Care. In *The Oxford Handbook of Fiduciary Law*, Evan J. Criddle, Paul B. Miller and Robert H. Sitkoff (eds.). Oxford University.
- Jonathan Haidt. 2024. *The Anxious Generation*. Penguin Random House.
- G. Stanley Hall. 1904. *Adolescence: Its Psychology and its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion and Education*. D. Appleton and Company.
- Woodrow Hartzog and Neil Richards. 2022. The Surprising Virtues of Data Loyalty. *Emory Law J.* 71, (2022), 985–1033.
- Woodrow Hartzog and Neil Richards. 2022. We're so close to getting data loyalty right. *IAPP*. Retrieved October 9, 2023 from <https://iapp.org/news/a/were-so-close-to-getting-data-loyalty-right/>
- Frances Haugen. 2021. Statement. Retrieved October 10, 2023 from <https://www.commerce.senate.gov/services/files/FC8A558E-824E-4914-BEDB-3A7B1190BD49>
- Sameer Hinduja and Justin W. Patchin. 2014. *Bullying Beyond the Schoolyard: Preventing and Responding to Cyberbullying*. Corwin Press.
- Thomas Hine. 1999. *The Rise and Fall of the American Teenager*. Harper Perennial.
- Information Commissioner's Office. 2022. Guide to the UK General Data Protection Regulation (UK GDPR). Retrieved March 16, 2022 from <https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/>
- Ole Iversen, Kim Halskov, and Tuck Leong. 2010. Rekindling values in Participatory Design. In *Proceedings of the 11th Biennial Participatory Design Conference*, November 29, 2010, Sydney, Australia. ACM, Sydney, Australia, 91–100. <https://doi.org/10.1145/1900441.1900455>
- Steven J. Jackson, Tarleton Gillespie, and Sandy Payette. 2014. The policy knot: re-integrating policy, practice and design in cscw studies of social computing. In *Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing*, February 15, 2014, Baltimore Maryland USA. ACM, Baltimore Maryland USA, 588–602. <https://doi.org/10.1145/2531602.2531674>



Sara B. Johnson, Robert W. Blum, and Jay N. Giedd. 2009. Adolescent Maturity and the Brain: The Promise and Pitfalls of Neuroscience Research in Adolescent Health Policy. *J. Adolesc. Health* 45, 3 (September 2009), 216–221. <https://doi.org/10.1016/j.jadohealth.2009.05.016>

Lisa M. Jones, Kimberly J. Mitchell, and David Finkelhor. 2013. Online harassment in context: Trends from three Youth Internet Safety Surveys (2000, 2005, 2010). *Psychol. Violence* 3, 1 (January 2013), 53–69. <https://doi.org/10.1037/a0030309>

Anya Kamenetz. 2021. Facebook’s own data is not as conclusive as you think about teens and mental health. *NPR*. Retrieved October 10, 2023 from <https://www.npr.org/2021/10/06/1043138622/facebook-instagram-teens-mental-health>

Jay P. Kesan and Rajiv C. Shah. 2005. Shaping Code. *Harv. J. Law Technol.* 18, 2 (2005), 319–399.

Knight Foundation and Gallup. 2020. *Techlash? America’s Growing Concern With Major Technology Companies*. Retrieved January 24, 2024 from <https://knightfoundation.org/wp-content/uploads/2020/03/Gallup-Knight-Report-Techlash-Americas-Growing-Concern-with-Major-Tech-Companies-Final.pdf>

Mary B Kribble. 2008. Fear-Mongering, Filters, the Internet, and the First Amendment: Why Congress Should Not Pass Legislation Similar to the Deleting Online Predators Act. *Roger Williams Univ. Law Rev.* 13, 2 (2008), 497–529.

James E. Krier and Clayton P. Gillette. 1985. The Un-Easy Case for Technological Optimism. *Mich. Law Rev.* 84, 3 (December 1985), 405–429. <https://doi.org/10.2307/1289008>

Matthew Lang. 2013. The impact of mental health insurance laws on state suicide rates. *Health Econ.* 22, 1 (January 2013), 73–88. <https://doi.org/10.1002/hec.1816>

Bruno Latour. 1988. Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer. *Soc. Probl.* 35, 3 (1988), 298–310. <https://doi.org/10.2307/800624>

Lawrence Lessig. 1999. *Code and Other Laws of Cyberspace*. Basic Books.

Leah A Lievrouw. 2006. New Media Design and Development: Diffusion of Innovations v Social Shaping of Technology. In *The Handbook of New Media. Updated Student Edition*, Leah A Lievrouw and Sonia Livingstone (eds.). SAGE.

Cristiano Lima-Strong. 2021. Lawmakers hammer Facebook for hiding how its products may hurt kids. *Washington Post*. Retrieved January 23, 2024 from <https://www.washingtonpost.com/technology/2021/09/30/facebook-instagram-congress-hearing-antigone-davis/>

Cristiano Lima-Strong. 2023. A new bill would ban anyone under 16 from using social media. *Washington Post*. Retrieved October 9, 2023 from <https://www.washingtonpost.com/politics/2023/02/02/new-bill-would-ban-anyone-under-16-using-social-media/>

Sonia Livingstone. 1996. On the continuing problems of media effects research. In *Mass Media and Society* (2nd ed.). Edward Arnold.

Hugh Mackay, Chris Carne, Paul Beynon-Davies, and Doug Tudhope. 2000. Reconfiguring the User: Using Rapid Application Development. *Soc. Stud. Sci.* 30, 5 (October 2000), 737–757. <https://doi.org/10.1177/030631200030005004>

Donald A. MacKenzie and Judy Wajcman (Eds.). 2011. *The Social Shaping of Technology* (2. ed., reprinted ed.). Open University Press, Maidenhead.

Michael J. Madison. 2017. *Law as Design: Objects, Concepts, and Digital Things*. LawArXiv. <https://doi.org/10.31228/osf.io/jqny6>

Edward J. Markey. 2021. *Kids Internet Design and Safety Act of 2021*. Retrieved January 5, 2024 from <https://www.congress.gov/bill/117th-congress/senate-bill/2918/text>

Alice E. Marwick. 2008. To catch a predator? The MySpace moral panic. *First Monday* 13, 6 (May 2008). <https://doi.org/10.5210/fm.v13i6.2152>

Alice E. Marwick and Rebecca Lewis. 2017. *Media Manipulation and Disinformation Online*. Data & Society.

Margaret Mead. 1950. *Coming of Age in Samoa: A Psychological Study of Primitive Youth for Western Civilization*. Harper Perennial.

Kimberley J. Mitchell, David Finkelhor, and Janis Wolak. 2007. Youth Internet Users at Risk for the Most Serious Online Sexual Solicitations. *Am. J. Prev. Med.* 32, 6 (June 2007), 532–537. <https://doi.org/10.1016/j.amepre.2007.02.001>

Evgeny Morozov. 2013. *To Save Everything, Click Here*. Penguin Books Limited.

Adam Mosseri. 2017. Working to Stop Misinformation and False News. *Meta for Media*. Retrieved October 10, 2023 from <https://www.facebook.com/formedia/blog/working-to-stop-misinformation-and-false-news>

Hannah Natanson. 2023. Red states quit nation's oldest library group amid culture war over books. *Washington Post*. Retrieved October 10, 2023 from <https://www.washingtonpost.com/education/2023/09/15/american-library-association-book-bans/>

N.D. Cal. 2023. *NETCHOICE, LLC, Plaintiff, v. ROB BONTA, Defendant. 22-cv-08861-BLF*.

Helen Nissenbaum. 1998. Values in the Design of Computer Systems. *Comput. Soc.* (March 1998), 38–39.

Safiya Umoja Noble. 2018. *Algorithms of Oppression*. New York University Press.

Lata Nott. 2020. Political Advertising on Social Media Platforms. *Hum. Rights* 45, 3 (2020), 6–8.

Max Oelschlaeger. 1979. The Myth of the Technological Fix. *Southwest. J. Philos.* 10, 1 (1979), 43–53.

David G. Owen. 2022. *Products Liability Law* (4th ed.). West Academic Publishing.

Sarah Philips. 2023. This Bill Threatens Access to LGBTQ+ Online Communities. *Teen Vogue*. Retrieved October 10, 2023 from <https://www.teenvogue.com/story/kids-online-safety-act-lgbtq-youth>

Jens Qvortrup. 2014. Sociology: Societal Structure, Development of Childhood, and the Well-Being of Children. In *Handbook of Child Well-Being: Theories, Methods and Policies in Global Perspective*, Asher Ben-Arieh, Ferran Casas, Ivar Frønes and Jill E. Korbin (eds.). Springer, 663–707. [https://doi.org/10.1007/978-90-481-9063-8\\_138](https://doi.org/10.1007/978-90-481-9063-8_138)

Joel R. Reidenberg. 1998. Lex Informatica: The Formulation of Information Policy Rules through Technology. *Tex. Law Rev.* 76, 3 (1998), 553–593.

Robert J. Rhee. 2013. The Tort Foundation of Duty of Care and Business Judgment. *Notre Dame Law Rev.* 88, 3 (2013), 1139–1198.

Yoel Roth. 2023. Yoel Roth warns new X CEO about Elon and company status. Retrieved October 10, 2023 from <https://www.youtube.com/watch?v=M9XoUUYeZD8>

Henrik Sætra (Ed.). 2023. *Technology and Sustainable Development: The Promise and Pitfalls of Techno-Solutionism*. Taylor & Francis. <https://doi.org/10.1201/9781003325086>

Brian Schatz. 2021. *Data Care Act of 2021*. Retrieved January 5, 2024 from <https://www.congress.gov/bill/117th-congress/senate-bill/919#:~:text=Specifically%2C%20online%20service%20providers%20have,also%20bound%20by%20the%20duties>

Adrienne Sconyers. 2018. Corporations, Social Media, & Advertising: Deceptive, Profitable, or Just Smart Marketing. *J. Corp. Law* 43, 2 (2018), 417-[viii].

Andrew D. Selbst, danah boyd, Sorelle A. Friedler, Suresh Venkatasubramanian, and Janet Vertesi. 2019. Fairness and Abstraction in Sociotechnical Systems. In *Proceedings of the Conference on Fairness, Accountability, and Transparency*, January 29, 2019, New York, NY, USA. ACM, New York, NY, USA, 59–68. . <https://doi.org/10.1145/3287560.3287598>

Katie Shilton. 2015. Anticipatory Ethics for a Future Internet: Analyzing Values During the Design of an Internet Infrastructure. *Sci. Eng. Ethics* 21, 1 (February 2015), 1–18. <https://doi.org/10.1007/s11948-013-9510-z>

Robert H. Sitkoff. 2019. Fiduciary Principles in Trust Law. In *The Oxford Handbook of Fiduciary Law*, Evan J. Criddle, Paul Miller and Robert H. Sitkoff (eds.). Oxford University.

Peter K. Smith and Sonia Livingstone. 2017. Child Users of Online and Mobile Technologies—Risks, Harms and Intervention. In *Child Psychology and Psychiatry: Frameworks for Clinical Training and Practice*, David Skuse (ed.). John Wiley & Sons.

Seventh Circuit. 2004. *Cuyler v. United States*, 362 F.3d 949.

Shaun B. Spencer. 2020. The Problem of Online Manipulation. *Univ. Ill. LAW Rev.* 2020, (2020), 959–1006. <https://doi.org/10.2139/ssrn.3341653>

John Springhall. 1998. *Youth, popular culture and moral panics: penny gaffs to gangsta-rap, 1830-1996*. St. Martin's Press.

Daniel Susser, Beate Roessler, and Helen F. Nissenbaum. 2019. Online Manipulation: Hidden Influences in a Digital World. *Georget. LAW Technol. Rev.* 4, 1 (2019), 1–45. <https://doi.org/10.2139/ssrn.3306006>

The European Parliament and the Council of the European Union. 2016. *General Data Protection Regulation (GDPR). Article 25: Data protection by design and by default*. Retrieved from <https://gdpr-info.eu/art-25-gdpr/>

The White House. 2023. Fact Sheet: Biden-Harris Administration Announces Actions to Protect Youth Mental Health, Safety & Privacy Online. *The White House*. Retrieved October 10, 2023 from <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/23/fact-sheet-biden-harris-administration-announces-actions-to-protect-youth-mental-health-safety-privacy-online/>

Jean Twenge. 2017. *iGen: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy--and Completely Unprepared for Adulthood--and What That Means for the Rest of Us*. Atria Books.

Jean Twenge. 2023. *Generations. The Real Differences Between Gen Z, Millennials, Gen X, Boomers, and Silents—and What They Mean for America's Future*. Atria Books.

- Jean Twenge. 2023. Transcript: Ezra Klein Interviews Jean Twenge. Retrieved October 10, 2023 from <https://www.nytimes.com/2023/05/19/podcasts/transcript-ezra-klein-interviews-jean-twenge.html>
- UK Parliament. 2023. *Online Safety Act 2023*. Retrieved January 5, 2024 from <https://bills.parliament.uk/bills/3137>
- U.S. Surgeon General. 2023. *Social Media and Youth Mental Health: The U.S. Surgeon General's Advisory*. U.S. Department of Health & Human Services. Retrieved January 5, 2024 from <https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf>
- Siva Vaidyanathan. 2012. *The Googlization of Everything: (And Why We Should Worry)*. University of California Press.
- Julian Velasco. 2014. A Defense of the Corporate Law Duty of Care. *J. Corp. Law* 40, 3 (2014), 647–704. <https://doi.org/10.2139/ssrn.2491223>
- Matti Vuorre and Andrew K. Przybylski. 2023. Estimating the association between Facebook adoption and well-being in 72 countries. *R. Soc. Open Sci.* 10, 8 (August 2023), 221–451. <https://doi.org/10.1098/rsos.221451>
- Ari Ezra Waldman. 2019. Privacy's Law of Design. *UC IRVINE LAW Rev.* 9, 5 (2019), 1239–1288.
- Alvin M. Weinberg. 1967. Can Technology Replace Social Engineering? - Alvin M. Weinberg, 1967. *Am. Behav. Sci.* 10, 9 (1967), 7–10.
- Georgia Wells, Jeff Horwitz, and Deepa Seetharaman. 2021. Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show. *Wall Street Journal*. Retrieved October 9, 2023 from <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739>
- Richard S Whitt. 2019. Old School Goes Online: Exploring Fiduciary Obligations of Loyalty and Care in The Digital Platforms Era. *St. Clara High Hech Law J.* 36, (2019), 75–131.
- Langdon Winner. 1980. Do Artifacts Have Politics? *Daedalus* 109, 1 (Winter 1980), 121–136.
- Richmond Y. Wong and Deirdre K. Mulligan. 2019. Bringing Design to the Privacy Table: Broadening “Design” in “Privacy by Design” Through the Lens of HCI. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, May 02, 2019, Glasgow, Scotland UK. ACM, Glasgow, Scotland UK, 1–17. . <https://doi.org/10.1145/3290605.3300492>
- Steve Woolgar. 1991. Configuring the User: The Case of Usability Trials. In *A Sociology of Monsters: Essays on Power, Technology and Domination*, John Law (ed.). Routledge.
- Sally Wyatt. 2023. Technological Determinism What It Is and Why It Matters. In *Technology Ethics: A Philosophical Introduction and Readings*. Routledge.
- Michele L. Ybarra and Kimberly J. Mitchell. 2007. Prevalence and frequency of Internet harassment instigation: implications for adolescent health. *J. Adolesc. Health Off. Publ. Soc. Adolesc. Med.* 41, 2 (August 2007), 189–195. <https://doi.org/10.1016/j.jadohealth.2007.03.005>
- Jonathan Zittrain. 2018. How to Exercise the Power You Didn't Ask For. *Harvard Business Review*. Retrieved December 18, 2023 from <https://hbr.org/2018/09/how-to-exercise-the-power-you-didnt-ask-for>