Before the
Federal Trade Commission
Washington, DC 20580

In the Matter of)
)
)
Trade Regulation Rule on Commercial)   Commercial Surveillance ANPR, R111004
Surveillance and Data Security)
)   Docket No. FTC-2022-0053-0001
)
Request for Public Comment)

Comments of:

Center for Digital Democracy
Fairplay
#HalfTheStory
American Academy of Pediatrics
Becca Schmill Foundation
Berkeley Media Studies Group
Children and Screens: Institute of Digital Media and Child Development
Consumer Federation of America
Consumer Federation of California
CUNY Urban Food Policy Institute
Eating Disorders Coalition for Research, Policy & Action
Enough is Enough
LookUp.live
Lynn's Warriors
National Eating Disorders Association
Parents Television and Media Council
ParentsTogether
Peace Educators Allied for Children Everywhere (P.E.A.C.E.)
Public Citizen
UConn Rudd Center for Food Policy & Health

Executive Summary

The Center for Digital Democracy, Fairplay, and #HalfTheStory, American Academy of Pediatrics, Becca Schmill Foundation, Berkeley Media Studies Group, Children and Screens: Institute of Digital Media and Child Development, Consumer Federation of America, Consumer Federation of California, CUNY Urban Food Policy Institute, Eating Disorders Coalition for Research, Policy & Action, Enough is Enough, LookUp.live, Lynn's Warriors, National Eating Disorders Association, Parents Television and Media Council, ParentsTogether, Peace Educators Allied for Children Everywhere (P.E.A.C.E.), Public Citizen and UConn Rudd Center for Food Policy & Health appreciate that the Federal Trade Commission (FTC) is looking closely at the prevalence of commercial surveillance and data security practices that harm consumers. As outlined below, we urge the Federal Trade Commission to propose a rule prohibiting the prevalent, unfair, and deceptive practice of surveillance advertising to minors. Further, we ask that the trade regulation rules adopted by the Commission limit commercial surveillance of minors.

As we demonstrate in our comments, children and teenagers experience widespread commercial surveillance practices to collect data used to target them with marketing. Targeted and personalized advertising remains the dominant business model for digital media, with the marketing and advertising industry identifying children and teens as a prime target. Minors are relentlessly pursued while, simultaneously, they are spending more time online than ever before. Children's lives are filled with surveillance, involving the collection of vast amounts of personal data of online users. This surveillance, informed by behavior science and maximized by evolving technologies, allows platforms and marketers to profile and manipulate children.

The prevalence of surveillance advertising and targeted marketing aimed at minors is unfair in violation of Section 5. Specifically, data-driven marketing and targeted advertising causes substantial harm to children and teens by:
- violating their privacy;
- manipulating them into being interested in harmful products;
- undermining their autonomy
- perpetuating discrimination and bias;

Additionally, the design choices tech companies use to optimize engagement and data collection in order to target marketing to minors further harm children and teens. These harms include undermining their physical and mental wellbeing and increasing the risk of problematic internet risk. These harms cannot reasonably be avoided by minors or their families, and there are no countervailing benefits to consumers or competition that outweigh these harms.

Surveillance advertising is also deceptive to children, as defined by the Federal Trade Commission. The representations made about surveillance advertising by adtech companies,

social media companies, apps, and games are likely to mislead minors and their parents and guardians. These misrepresentations and omissions are material. Many companies also mislead minors and their guardians by omission because they fail to disclose important information about their practices. These practices impact the choices of minors and their families every day as they use websites, apps, and services without an understanding of the complex system of data collection, retention, and sharing that is used to influence them online. We therefore urge the Commission to promulgate a rule that prohibits targeted marketing to children and teenagers.

The complexity of the surveillance advertising apparatus and its omnipresence in Americans' lives render it unavoidable for children and teens. The FTC has the necessary legal authority to make rules protecting children and teens from harmful online practices related to commercial surveillance. We urge the Commission to prohibit data-driven surveillance advertising and marketing to individuals under 18. We propose rule text in Appendix A, as well as additional standards to advance data practices in the best interests of young people in Appendix B.

Introduction

Commenters the Center for Digital Democracy, Fairplay, and #HalfTheStory, American Academy of Pediatrics, Becca Schmill Foundation, Berkeley Media Studies Group, Children and Screens: Institute of Digital Media and Child Development, Consumer Federation of America, Consumer Federation of California, CUNY Urban Food Policy Institute, Eating Disorders Coalition for Research, Policy & Action, Enough is Enough, LookUp.live, Lynn's Warriors, National Eating Disorders Association, Parents Television and Media Council, ParentsTogether, Peace Educators Allied for Children Everywhere (P.E.A.C.E.), Public Citizen and UConn Rudd Center for Food Policy & Health ("Commenters") urge the Federal Trade Commission ("Commission") to propose a rule prohibiting the prevalent, unfair, and deceptive practice of surveillance marketing to minors.[1] Further, Commenters ask that the trade regulation rules adopted by the Commission ban commercial surveillance of minors.[2]

As the Commission observed in its Advanced Notice, commercial surveillance is unavoidable for most Americans. This is just as true for minors as it is for adults. The commercial surveillance of a minor begins as soon as a parent or guardian puts information about that minor onto an app, website, or other service, and it continues throughout the minor's life as they themselves seek opportunities to learn, play, and socialize online. A web of sophisticated actors collect, retain, and sell this data in order to target minors with digital marketing. As Commenters illustrate in detail below, this surveillance advertising[3] apparatus is complex, and it captures massive amounts of information about children and teenagers in order to generate profit.

Surveillance advertising is unfair and deceptive to minors in violation of Section 5 of the FTC Act. It substantially harms children and teenagers by pushing unhealthy and unsafe products on them, manipulating their behavior, and perpetuating discrimination. In addition, the business model for most digital media—which relies on optimizing engagement in order to maximize data

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[1] Commenters have indicated at the top of each section which questions in the Commission's Notice are addressed therein.

[2] Commenters refer to this group alternately as minors, children and teenagers, and kids and teens. In all instances, Commenters are talking about individuals under the age of 18 years old.

[3] Commenters use "surveillance advertising," "surveillance marketing," and "targeted marketing and advertising" interchangeably generally referring to Surveillance Marketing which we define in the following way:

> Contemporary digital surveillance marketing, in addition to being about marketing, consists of multiple processes and integrated elements that involve the collection, use, retention, or transfer of data about individuals or groups online. Marketing is a communication, technique, or practice employed by a business or an entity acting on the business' behalf in any medium to bring products, services, opinions, companies, or brands, or causes to be noticed for the purpose of persuading the recipient to respond in a manner intended to commercially benefit the marketer. A more detailed definition can be found in Appendix C.

collection and ad revenue—is associated with serious harms to young people's physical and mental wellbeing. These injuries cannot reasonably be avoided by minors or their families, and they are not outweighed by benefits to consumers or competition. Surveillance advertising practices are deceptive because they are likely to mislead reasonable minors and affect their conduct.

Commercial actors are not held accountable for the harms that this unrestrained surveillance system inflicts on children and teens. These market externalities—the costs to individuals, families, society and future generations–are not accounted for fairly, equitably, or justly. Children and teens, their families, and our communities bear the burden of these harms alone.

We must urgently address the harms now and examine their root causes. We urge the Commission to prohibit data-driven surveillance advertising and marketing to individuals under 18. We propose rule text in Appendix A, as well as additional standards to advance data practices in the best interests of young people in Appendix B.

I. **Children and teenagers experience widespread commercial surveillance practices to collect data used to target them with marketing**
[Questions 14, 19, 20, 21]

Young people in the United States—children and teenagers—have grown up in a pervasive, unaccountable, and harmful data-driven commercial surveillance environment. They are now surrounded by, and frequently use, connected devices that have been engineered to collect and leverage vast amounts of information about them, their families and communities. The applications minors use to socialize, learn, and play–including social media platforms and streaming services–have been purposely developed to harvest, analyze and then make "actionable" a wide range of information collected from kids, teens, their peers, families, and others. In the absence of privacy safeguards for Americans 13 and older, and with the limitations of the Children's Online Privacy Protection Act framework, children and teens have been forced to submit to a relentless tsunami of continuous data-driven commercial surveillance.[4]

This invasive apparatus has been imposed on America's youth—and their families— through a set of data-profiling practices that initially developed in the 1990s, especially

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[4] We urge the commission to review the extensive record documenting how the array of data-driven digital marketing practices preys on young people. Such case studies, some of which are cited in this filing, can be found at Warc.com, OMMA awards, "Smarties" and "Shorty" awards and other marketing industry sites. For example, *see OMMA Awards,* Media Post (Oct. 4, 2022), https://www.mediapost.com/ommaawards/; *McDonald's: Famous Orders*, WARC (last visited Nov. 20, 2022), https://www.warc.com/content/article/warc-awards-effectiveness/mcdonalds-famous-orders/145696.

behavioral marketing. It has vastly expanded in the 21ˢᵗ century due to the significant adoption by young people of mobile devices, creating what marketers acknowledged is a "spy in your pocket."[5] The rise of data-driven programmatic advertising as the dominant method used by platforms, publishers and the digital marketing industry to identify, track and target individuals now affects users across all platforms—creating a formidable, continuous system of surveillance and manipulation.[6] Major applications and platforms are purposefully designed to facilitate continuous data collection, through the testing, measurement and certification systems operated by leading online platforms and industry-funded trade associations. This includes an array of widely adopted and far-reaching practices and techniques that confront children and teenagers.[7]

These practices include sophisticated advertising technologies embedded throughout the major platforms and publishers that
- target kids and teens with fine-tuned manipulative messaging;
- solicit, gather, integrate, analyze and also generate actionable insights using an individual's data;
- use online content designed to promote "immersive" and emotional bonds between individuals, brands, platforms and advertisers and that is optimized for engagement;
- leverage youth culture through an array of "influencers" and branded music and video content designed to maximize data collection;
- harvest social media-based communications from youth through a variety of "social listening" technologies operating in real-time;
- stealthily assess and respond to the behaviors, actions and interest of youth (and others);
- employ measurement and real-time feedback loops that test and refine marketing strategies for maximum effect.[8]

A. Targeted and personalized advertising and marketing is the dominant business model and harms children and teens online

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[5] *The Spy in Your Pocket*, The Economist (Feb. 26, 2015), https://www.economist.com/briefing/2015/02/26/the-spy-in-your-pocket.
[6] *Programmatic Ad Spending*, Insider Intelligence (last visited Nov. 20, 2022), https://www.insiderintelligence.com/topics/topic/programmatic-ad-spending.

[7] *IAB New Ad Portfolio: Advertising Creative Guidelines*, IAB (last visited Nov. 20, 2022), https://www.iab.com/guidelines/iab-new-ad-portfolio/; *MRC Minimum Standards for Media Rating Research*, Media Rating Council, http://mediaratingcouncil.org/Standards.htm.
[8] Kristen Baker, *15 Best Social Listening Tools to Monitor Mentions of Your Brand*, HubSpot Blog (Nov. 3, 2021), https://blog.hubspot.com/service/social-listening-tools; *How to Use Socialbakers Social Listening to Tune Into Customers*, Emplifi (last visited Nov. 20, 2022), https://emplifi.io/resources/blog/how-to-use-socialbakers-for-social-listening.

Today's constant immersion in digital culture exposes children and teens to a steady flow of highly personalized and manipulative data-driven marketing and advertising. The almost exclusive reliance on personalized and targeted advertising and marketing, what we refer to here as surveillance advertising, shapes the entire online experience for children and teens.[9] In the U.S., programmatic data-driven marketing is the dominant model for advertising, delivering 90% of all display ads in 2022.[10] The pandemic has also accelerated the growth of digital advertising, which witnessed "a historic shift in market share," according to reporting in *The Financial Times,* which predicted that digital advertising was poised to overtake ad spending on traditional media for the first time. "The digital revolution in marketing under way since the millennium, when the internet accounted for under 2 percent of spending, has transformed the ad market at a pace and scale that far outstrips the advent of television in the 20th century."[11]

As minors eagerly embrace a growing number of social media, gaming platforms, and mobile apps, the imperatives of this business model are shaping the structures, operations, and affordances of their digital experiences. They are deliberately being socialized to disregard their privacy and expose their identities to a vast number of marketers, platforms and other commercial surveillance operatives.

Digital media today are designed and structured to serve the commercial interests—not the best interests—of children and teens. Commercial interests are not just optimizing advertising and marketing targeting practices to maximize revenue and lifetime customer value, but these interests are also shaping the overall design of the digital experience. The entire digital interface is the medium or platform for optimizing commercial surveillance so as to maximize attention, engagement and brand awareness, influence purchasing behaviors of children and teens and their families, and track interactions and sales, all in order to increase revenues. Although privacy and data protection laws—including both the EU's General Data Protection Regulation (GDPR) and the U.S. Children's Online Privacy Protection Act (COPPA)—have influenced some of the advertising and data practices targeting young children, they have done

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[9] For various data-driven targeting advertising approaches, *see, e.g.,* Programmatic Supply Chain Working Group, *Open RTB*, ver. 2.6, IAB Technology Laboratory (Apr. 2022), https://iabtechlab.com/wp-content/uploads/2022/04/OpenRTB-2-6_FINAL.pdf; *Meaningful Insights. Smarter Marketing. Better Results*, Google Marketing Platform (last visited Nov. 20, 2022), https://marketingplatform.google.com/about/enterprise/; *Data Providers: Welcome*, Xandr (last visited Nov. 20, 2022) https://docs.xandr.com/bundle/data-providers/page/welcome.html; *Standards and Guidelines Summary*, Media Ratings Council (last visited Nov. 20, 2022), http://mediaratingcouncil.org/MRC%20Standards%20Listing%2003-10-20.pdf.
[10] Meaghan Yuen, *Programmatic Digital Display Advertising in 2022: Ad Spend, Formats, and Forecast,* Insider Intelligence (May 23, 2022), https://www.insiderintelligence.com/insights/programmatic-digital-display-ad-spending/.
[11] Alex Barker, *Digital ad market set to eclipse traditional media for first time,* FT (June 22, 2020), https://www.ft.com/content/d8aaf886-d1f0-40fb-abff-2945629b68c0.

little to slow the growth of today's expansive and sophisticated digital marketing operations and commercial surveillance, leaving children underprotected and teens completely exposed.[12]

In addition, as the Commission recognizes, there has also been unprecedented consolidation of the digital marketplace, including platforms, adtech companies and data brokers. Many of these mergers have impacted minors, enabling further intrusive data surveillance.[13] Children and teens have no viable alternative. The data-driven business model that rules most of their digital lives, and the absence of any mitigating legislative or regulatory intervention, reduce the power of children, teens, and their families to such an extent that they are unable to optimize their digital experience for safety, wellbeing, and other societal interests.

B. The advertising and marketing industry has identified children and teens as a prime marketing target

Teenagers and children are the most coveted demographic for brands, retailers, and other marketers. They are the source for buying toys, games, clothes, food, beauty products, and lots of high-tech products and services. Marketers deliberately unleash an array of ad campaigns and marketing strategies designed to get them to buy or "pester" their parents.[14] Unsurprisingly, the reason media and marketing companies want unfettered access to influence children and teens, especially on digital platforms, are the financial rewards.[15]

An extensive system designed to ensure that commercial online content effectively solicits the interest and participation of young people is a core feature of the surveillance economy. A host of companies are engaged in multi-dimensional market research—including panels, labs, platforms, streaming media companies, studios and networks—that have a direct

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[12] Kathryn C. Montgomery & Jeff Chester, *Data Protection for Youth in the Digital Age: Developing a Rights-Based Global Framework*, 4 European Data Protection Law Rev. 277 (2015), https://doi.org/10.21552/edpl/2015/4/6.

[13] *See, e.g.,* Kelly Liyakasa, *Oracle To Acquire Data Solutions Giant Datalogix*, AdExchanger (Dec. 22, 2014), https://www.adexchanger.com/platforms/oracle-to-acquire-data-solutions-giant-datalogix/; *TransUnion Accelerates Growth of Identity-Based Solutions with Agreement to Acquire Neustar for $3.1 Billion*, TransUnion (Sept. 13, 2021), https://newsroom.transunion.com/transunion-accelerates-growth-of-identity-based-solutions--with-agreement-to-acquire-neustar-for-31-billion/.

[14] See, for example, Facebook's promotion of such "pester power": Meta, *Modern Parenting: A World of Infinite Choices and Voices*, Facebook IQ (Mar. 22, 2016), https://www.facebook.com/business/news/insights/modern-parenting-a-world-of-infinite-choices-and-voices.

[15] Jo Bowman, *Twinkle, twinkle little consumers – why brands should court kids as young as 3 to win current and future sales*, WARC (last visited Nov. 20, 2022), https://www.warc.com/content/article/event-reports/twinkle-twinkle-little-consumers--why-brands-should-court-kids-as-young-as-3-to-win-current-and-future-sales/142888; https://www.pipersandler.com/1col.aspx?id=6216.

impact on the methods used to advertise and market to youth.[16] There are numerous reports and studies on how lucrative young online consumers are and the best methods to lure them coming from brands, research companies and platforms.[17] For example, Amazon, Meta, Google, Microsoft, Activision Blizzard are among the clients of one child-focused research company whose "researchers, moderators and brand strategists are experts in uncovering opportunities and evaluating product and marketing efforts at all stages of development."[18] For these youth-focused clients, they conduct primary research including "Usability and UX Testing," and "Consumer Immersions," and document the candy, fast-food and online media brands that both children and teens are said to "love."[19]

Children constitute the most lucrative market for many businesses because they are actually three markets in one.[20] First, they have significant disposable income of their own. For example, *Bloomberg* reported in November 2021 that those born between 1997 and 2012 have about $360 billion in disposable spending, more than double an estimate from three years prior.[21] Piper Sandler, which has long studied the teen marketplace, reported in Spring 2022 that they had "captured >1.7 million new data points on this all-important GenZ; we now have >54M data points around teen preferences and spending in the 21+ years of researching teens."[22] Spending in Spring 2022 by teens "improved to $2,367" annually.[23] The report breaks down teens' digital

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[16] Jeff Chester, *Protecting Children and Teens from Unfair and Deceptive Marketing, including Stealth Advertising*, Center for Digital Democracy (Jul. 19 2022), https://www.democraticmedia.org/article/protecting-children-and-teens-unfair-and-deceptive-marketing-including-stealth-advertising.

[17] *Kids Digital Advertising Market*, Transparency Market Research (last visited Nov. 20, 2022), https://www.transparencymarketresearch.com/kids-digital-advertising-market.html; Google, *Gen Z: A Look Inside its Mobile-first Mindset*, Think with Google (Apr. 2017), https://www.thinkwithgoogle.com/marketing-strategies/app-and-mobile/gen-z-teen-interactive-report/; *Kids & Teens*, Panelbase (last visited Nov. 20, 2022), https://drg.global/divisions/panelbase/panels/kids-teens/.

[18] *What We Do*, Smarty Pants (last visited Nov. 20, 2022), https://www.asksmartypants.com/what-we-do.

[19] *Clients*, Smarty Pants (last visited Nov. 20, 2022), https://www.asksmartypants.com/clients.

[20] James U. McNeal, *From Savers to Spenders: How Children Became a Consumer Market*, Center for Media Literacy (last visited Nov. 20, 2022), https://www.medialit.org/reading-room/savers-spenders-how-children-became-consumer-market.

[21] Amelia Pollard, *Gen Z Has $360 Billion to Spend, Trick Is Getting Them to Buy,* Bloomberg, (Nov. 17, 2021), https://www.bloomberg.com/news/articles/2021-11-17/gen-z-has-360-billion-to-spend-trick-is-getting-them-to-buy?leadSource=uverify%20wall.

[22] Piper Sandler, *43rd Semi-Annual Taking Stock With Teens® Survey*, Pipersandler.com (2022), https://www.pipersandler.com/private/pdf/TSWT_Spring22_Infographic.pdf.

[23] Piper Sandler, *Taking Stock with Teens: 21 Years Of Researching U.S. Teens GenZ Insights*, Pipersandler.com (2021), https://www.pipersandler.com/private/pdf/TSWT_Fall_2021_Full_Report.pdf; *Kids' Digital Ad Market is Valued at $1.7bn by 2021,* WARC (Jun. 14, 2019), https://www.warc.com/newsandopinion/news/kids-digital-ad-market-is-valued-at-17bn-by-2021/en-gb/42223.

media use (e.g. "87% of teens own an iPhone, "TikTok is the favorite social media platform"), their payments apps (Apple Pay, PayPal, Venmo) and their expenditures for fast food and other products.[24] A recent report by a data-focused marketing company explained that "Gen Alpha is poised to have the greatest spending power in history, even more so than millennials and baby boomers…. Their digital-first, tech-savvy and highly social upbringing will fiercely impact their shopping behaviors."[25]

Second, children and teens influence an enormous amount of spending by their parents and peers. As many as 90% of parents say that their children influence their purchasing decisions.[26] One marketing survey focused on the youth digital streaming video market noted that "children influence family spending in many major categories," including "family entertainment, food delivery, technology and hygiene purchases."[27] It explained that "the brands and characters seen in the services and shows they use drive parents' purchases. 7-in-10 parents say they buy products for their children related to a favorite show or character they watch fairly often or more."[28] A 2020 report by youth-focused digital advertising company SuperAwesome highlighted how children's and teens' influence was "impacting everything from grocery purchases to holiday shopping and more."[29] For example, "young teens (13-15)… drive over $61B in annual household spending," and that "parents are including their children in every step of the purchasing journey, with 72% of parents typically involving them from the very start."[30]

Third, children and teens are a future market for most goods and services.[31] Manufacturers and retailers respond to them as future consumers to be cultivated now. The SuperAwesome report declares, "[K]ids (under 13) and Young Teens (13 to 16) have become the most critical entry-point for brands seeking to establish long-term brand loyalty."[32] Marketers

[24] *Id.*

[25] Jennifer Mandeville, *Generation Alpha: Who Are They?* Marketing Dive (Mar. 8, 2022), https://www.marketingdive.com/news/generation-alpha-who-are-they/619717/.

[26] *Marketing to the Generations – 90% of Parents Say Their Kids Influence Purchase Decisions*, V12 Blog (Jul. 14, 2022), https://v12data.com/blog/marketing-to-the-generations-kids-influence-purchase-decisions/.

[27] Colin Dixon, *Two-thirds of Parents Often Buy or Research Products Based on Child's Preference*, nScreenMedia, (Dec. 1, 2020), https://nscreenmedia.com/kid-streaming-report-parents-buy-kid-likes/.

[28] *Id.*

[29] *Five Stats that Prove the Influence of Kids and Young Teens over Household Spending,* SuperAwesome (Dec. 23, 2020), https://www.superawesome.com/blog/stats-influence-kids-household-spending/.

[30] *Id.*

[31] *5 Reasons Why Youth are Key to Long-term Brand Loyalty*, SuperAwesome (Sept. 27, 2021), https://www.superawesome.com/blog/5-reasons-youth-brand-loyalty/.

[32] *How Kids and Young Teens have Raised the Stakes for Brand Loyalty: A Guide to Entering the Loyalty Lifecycle and Staying There*, SuperAwesome, https://content.superawesome.com/hubfs/2021%20Reports/SuperAwesome%20report_How%20kids%20and%20Young%20Teens%20have%20raised%20the%20stakes%20for%20brand%20loyalty.pdf.

plant the seeds of brand recognition in very young children, hoping that these grow into lifetime relationships, thereby increasing these young consumers' "lifetime value" to their bottom line. For example, teens make up a key audience for the gaming industry, which incorporates Lifetime Value (LTV) metrics as part of its own surveillance marketing operations.[33]

In the internet age, children and teenagers are perhaps even more important and valuable to marketers and advertisers than adults. The newest generation of children online, so-called Generation Alpha (those born in the early 2010s and into mid 2020s), are the first truly digitally immersed humans born into an environment dominated by smartphones, tablets, and other electronic devices. Kids and teens engage in a range of social behaviors essential to the operations of social and mobile platforms; and are a "must-have" audience to ensure that leading platforms develop their next cohort of users for digital marketing services. Marketers are doing everything to influence this generation's consumer behavior.[34]

While many of Generation Alpha are attracted to Instagram, the best way to engage with the youngest children, according to marketing experts, is through YouTube. "[T]he key to winning Alphas' attention on that site," noted one executive, "is through a variety of 'kidfluencers,' or video stars as young as 3 years old, who have millions of loyal viewers. Alphas love to watch as their favorite YouTubers take them through different experiences, often accompanied by sampling different products." Influencer marketing has become a highly profitable sector of online marketing.[35] As it continues to grow, it has amassed a huge global infrastructure that facilitates programmatic delivery and data-driven marketing strategies.[36]

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[33] *How Kids and Young Teens have Raised the Stakes for Brand Loyalty: A Guide to Entering the Loyalty Lifecycle and Staying There*, SuperAwesome (last visited Nov. 20, 2022), https://content.superawesome.com/hubfs/2021%20Reports/SuperAwesome%20report_How%20kids%20and%20Young%20Teens%20have%20raised%20the%20stakes%20for%20brand%20loyalty.pdf; Mihovil Grguric, *User Lifetime Value: How To Increase It For Your Mobile Game*, Udonis Blog (Jan. 24, 2022), https://www.blog.udonis.co/mobile-marketing/mobile-games/lifetime-value; Katie Gilsenan, *The Next Gen: Getting to Know Kids' Relationship with Video Games*, GWI (Jul. 27, 2021), https://blog.gwi.com/chart-of-the-week/kids-relationship-with-video-games/; *User LTV Measurement Done Right*, Kochava (last visited Nov. 20, 2022), https://www.kochava.com/total-ltv/.
[34] Josch Chodakowsky, *Marketing to Generation Alpha, the Newest and Youngest Cohort*, ANA (Jan. 13, 2022), https://www.ana.net/miccontent/show/id/ii-2021-pulse-gen-alpha-trends.

[35] "Influencer" is now one of the most desired career paths for both children and adults. *See, e.g.,* Rebecca Jennings, *So Your Kid Wants to be an Influencer*, Vox (Aug. 31, 2022), https://www.vox.com/the-goods/2022/8/31/23328677/kid-influencer-ryans-world-ellie-zeiler.
[36] *See, e.g., The Young and the Textless: The Key to Reaching Generation Alpha is YouTube and Instagram, but Brands Need to be Wary of Privacy Concerns*, WARC (Dec. 2019), https://www.warc.com/content/article/ana/the-young-and-the-textless-the-key-to-reaching-generation-alpha-is-youtube-and-instagram-but-brands-need-to-be-wary-of-privacy-concerns/130825 (subscription required). *See also* Jeff Chester, Kathryn C. Montgomery, and Katharina Kopp, *Big Food, Big Tech, and the Global Childhood Obesity Pandemic*, Center for Digital Democracy (May 2021), https://www.democraticmedia.org/sites/default/files/field/public-files/2021/cdd_big_food_big_tech_5-

The recent revelations from the "Facebook Files" also illustrate just how valuable young people are to online platforms. As reported in October 2021, the loss of teens by Facebook was considered an "existential threat" because of the importance of minors to user growth.[37] Consequently, in 2018, Facebook "earmarked almost its entire global annual marketing budget to targeting teenagers, largely through digital ads."[38] Facebook was especially concerned about reaching 13-15 year-olds, which it categorized as "early high school," and spent $390 million to reach this audience.[39] Teens are key to social media spending and help make up the $150 billion in "collective buying power" for the "Gen Z" cohort, according to eMarketer.[40]

It is no surprise then that marketers pursue this lucrative market with considerable resources online, given their direct spending, key audience for digital platforms and commercial applications, and influence overall for other spending. In 2021, spending on digital advertising to children amounted to 2.9 billion U.S. dollars worldwide, 1.08 billion U.S. dollars in the U.S. alone. Between 2021 and 2031, it is expected to increase at a compound annual growth rate (CAGR) of roughly 22 percent to reach 21.1 billion dollars.[41]

C. Children are born into a surveillance culture

Children are literally "born" into the commercial surveillance economy in the U.S. Pregnant mothers-to-be are identified by a range of integrated online and offline techniques, so that targeted marketing can commence even before the birth of a child.[42] By capturing social

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21fin.pdf; Levin Vostell, *An overview of Programmatic Influencer Marketing,* LinkedIn (Jan. 15, 2019), https://www.linkedin.com/pulse/overview-programmatic-influencer-marketing-levin-vostell/.

[37] Alex Heath, *Facebook's Lost Generation,* The Verge (Oct. 25, 2021), https://www.theverge.com/22743744/facebook-teen-usage-decline-frances-haugen-leaks.

[38] Sheera Frenkel et al., *Instagram Struggles With Fears of Losing Its 'Pipeline': Young Users*, The New York Times (Oct. 16, 2021), https://www.nytimes.com/2021/10/16/technology/instagram-teens.html.

[39] *Id.*

[40] Victoria Petrock, *US Generation Z Shopping Behaviors: How the Most Marketed-To Generation Likes to Buy,* eMarketer (Nov. 15, 2021), https://content-na1.emarketer.com/us-generation-z-shopping-behaviors.

[41] *Spending on Digital Advertising to Children Worldwide from 2021 to 2031*, Statista (last visited Nov. 20, 2022), https://www.statista.com/statistics/1326893/children-digital-advertising-spending-worldwide/; *Kids Digital Advertising Market*, Transparency Market Research (last visited Nov. 20, 2022), https://www.transparencymarketresearch.com/kids-digital-advertising-market.html.

[42] *See, e.g.,* Cara Wilking, *Reducing Digital Marketing of Infant Formulas*, The Public Health Advocacy Institute, (Nov. 2020), http://3.228.1.30/wp-content/uploads/2020/11/IF-Digital-Marketing-Full-Report-Nov-2020.pdf; *Enfamil: Most Important Person*, Effie (last visited Nov. 20, 2022), https://www.effie.org/case_database/case/HE_2020_E-5051-508; *Veeva Crossix Data Platform*, Veeva (last visited Nov. 20, 2022), https://www.veeva.com/products/crossix-data-platform/; *Colief Infant Digestive Aid: Answering a Mom's Cry for Help*, WARC (last visited Nov. 20, 2022),

media communications, search inquiries, video views, retail and ecommerce sales data and leveraging the extensive online health marketing apparatus serving the medical profession, marketers are able to hone early childhood-related profiles. Everything from infant formula to clothes to toys is pitched to parents using early childhood surveillance methods.[43] A key finding of the 2022 MRS Kids and Youth Research conference was that 3- to 10-year-olds are "already a major force in their own homes, influencing parent's shopping decisions and using technology in ways that's as effortless for them as flicking through a picture book."[44] Marketers are advised to take advantage of all the data about them available from YouTube, mobile phones and other digital devices and applications.[45] By the time a young person reaches their teen years, the surveillance apparatus is firmly entrenched, given their overwhelming adoption of social media, gaming, streaming, and mobile devices. Schools surveil students with "student safety" measures, watch them online and on their phones,[46] and extract their data for commercial purposes every step of the way.[47] According to a 2022 report from The Center for Democracy & Technology, eighty-nine percent of teachers report that their students are surveilled both during and after school time. Furthermore, seventy-eight percent of the reports generated end with students receiving disciplinary treatment (as opposed to being referred to a counselor or receiving support).[48] This surveillance can also cause non-consensual outing of LGBTQ+ students, leading to unintended negative mental health effects.[49] One popular student surveillance software, Gaggle, which monitors over 5 million American children, has repeatedly leaked student data.[50] The surveillance of our digital lives, including the growing role of health wearables, digital out

https://www.warc.com/content/article/sabre-awards/colief-infant-digestive-aid-answering-a-moms-cry-for-help/118122.

[43] *Id.*

[44] Jo Bowman, *supra* note 15.

[45] *Id.*

[46] Mona Wang & Gennie Gebhart, *Schools Are Pushing the Boundaries of Surveillance Technologies*, Electronic Frontier Foundation (Feb. 27 2020), https://www.eff.org/deeplinks/2020/02/schools-are-pushing-boundaries-surveillance-technologies; Natasha Singer, *A Cyberattack Illuminates the Shaky State of Student Privacy*, The New York Times (Jul. 31, 2022), https://www.nytimes.com/2022/07/31/business/student-privacy-illuminate-hack.html.

[47] Daniel G. Krutka et al., *Don't Be Evil: Should We Use Google in Schools?* 65 TechTrends 421 (2021), https://doi.org/10.1007/s11528-021-00599-4.

[48] Elizabeth Laird et al., *Report – Hidden Harms: The Misleading Promise of Monitoring Students Online*, Center for Democracy and Technology (last visited Nov. 20, 2022), https://cdt.org/insights/report-hidden-harms-the-misleading-promise-of-monitoring-students-online/.

[49] *Id.*

[50] Caroline Haskins, *How Gaggle Surveils Every Document, Email, Chat, And Picture That Students Create*, Buzzfeed New (Nov. 1, 2019), https://www.buzzfeednews.com/article/carolinehaskins1/gaggle-school-surveillance-technology-education

of the home smart marketing devices, geo-tracking services on phones, and the rapid diffusion of new surveillance devices—such as connected TVs—will last until the end of life.[51]

D. Lured by technology designed to engage and capture their attention, children and teens are spending more time with digital media than ever before

Kids' and teens' screen and online media usage has skyrocketed since the pandemic. A recent report found that overall screen use among teens and tweens increased by 17 percent from 2019 to 2021. On average, daily screen use went up among tweens (ages 8 to 12) to five hours and 33 minutes, and to a staggering eight hours and 39 minutes for teens (ages 13 to 18).[52]

A 2020 industry survey of children's app usage in the United States, the UK, and Spain reported that young people between the ages of 4 and 15 now split their time between YouTube and other apps, like TikTok, Netflix and mobile games like Roblox.[53] Children aged 3-5 years are more likely to use YouTube than YouTube Kids and spend over an hour per day on it.[54] Despite the fact that TikTok's terms of service require users to be at least thirteen, the 4-15-year-old cohort spends almost as much time per day (80 minutes) on TikTok as they do on the highly popular YouTube (85 minutes). TikTok is also credited with helping to drive growth in children's social app use by 100 percent in 2019 and 200 percent in 2020.[55]

Other recent data demonstrates the popularity of social media among young people. YouTube, TikTok, Instagram, and Snapchat remain the most popular social media platforms. Ninety-five percent of teens say they use YouTube, and some 67 percent of teens say they use TikTok, with 16 percent of all teens saying they use it almost constantly. Meanwhile, the share of teens who say they use Facebook has plummeted from 71 percent in 2014-15 to 32 percent today. Of the top five online platforms—YouTube, TikTok, Instagram, Snapchat and

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[51] Rachel Deacon, *Why Brands Can't Afford to Ignore the Baby Boomer Generation*, WARC (last visited Nov. 20, 2022), https://www.warc.com/content/article/warc-exclusive/why-brands-cant-afford-to-ignore-the-baby-boomer-generation/132321.

[52] Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens*, Common Sense (2021), https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf (these hours may include multitasking on several screens at once.).

[53] Sarah Perez, *Kids Now Spend Nearly as Much Time Watching TikTok as YouTube in US, UK and Spain*, TechCrunch (June 4, 2020), https://techcrunch.com/2020/06/04/kids-now-spend-nearly-as-much-time-watching-tiktok-as-youtube-in-u-s-u-k-and-spain/; *US Teens Use TikTok as Much as Facebook*, WARC (July 11, 2019), https://www.warc.com/newsandopinion/news/us-teens-use-tiktok-as-much-as-facebook/42878.

[54] Jenny S. Radesky et al., *Video-Sharing Platform Viewing Among Preschool-Aged Children: Differences by Child Characteristics and Contextual Factors*, 25 Cyberpsychology Behav. Soc. Netw 230 (2022).

[55] Sarah Perez, *supra* note 53.

Facebook—fully 35 percent of teens say they are using at least one of them "almost constantly.".[56]

E. <u>Adtech and kidtech pursue minors relentlessly and treat them as if they were adults</u>

To pursue children and teens with targeted marketing messages online effectively, an entire integrated infrastructure has been developed. This infrastructure is composed of a global media, marketing and sales apparatus, capable of gathering and using unprecedented amounts of data.[57] Major companies, including Google and Facebook, are now part of an integrated chain of relationships—collectively known as "adtech" or "martech"—that includes ad agencies, data brokers, marketing clouds, data management platforms (DMPs), ecommerce applications, lead generators, artificial intelligence ad specialists, identity management infrastructures, media companies, measurement providers, and many other specialized services.[58] The self-imposed need for increasingly effective targeted marketing has created a tightly connected data lifecycle infrastructure that feeds off of more and more data.[59] "Data is the foundation of any lifecycle marketing campaign…. [T]he more data available, the better," the Retention Science website declares.[60] These adtech services offer a growing spectrum of automated ad software and tools, powered by the next generation of AI and machine learning, "customer-engagement suites" and other forms of "business intelligence" software that can deliver highly personalized and optimized interactions with millions of consumers simultaneously.[61]

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[56] Sara Atske, *Teens, Social Media and Technology 2022*, Pew Research Center: Internet, Science & Tech (last visited Nov. 20, 2022), https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/.

[57] James McDonald, *One in Four Ad Dollars Goes to the Google/Facebook Duopoly*, WARC Data Points (Mar. 2019), https://www.warc.com/content/article/warc-datapoints/one_in_four_ad_dollars_goes_to_the_google_facebook_duopoly/117305.

[58] *The Beginners Guide to the Programmatic AdTech Ecosystem: Explained in an Interactive Graphic!*, Martech Advisor (Mar. 9, 2018), https://issuu.com/martechadvisor/docs/the_beginners_guide_to_the_programm.

[59] *Braze Launches Machine Learning-Powered Predictive Suite to Bolster Cross-Channel Capabilities and Boost Customer Loyalty*, PR News Wire (Jan. 21, 2020), https://www.prnewswire.com/news-releases/braze-launches-machine-learning-powered-predictive-suite-to-bolster-cross-channel-capabilities-and-boost-customer-loyalty-300988518.html.

[60] *3 Key Ingredients to Lifecycle Marketing,* Retention Science (last visited Nov. 20, 2022), https://www.retentionscience.com/blog/3-key-ingredients-lifecycle-marketing/.

[61] *Adobe Experience Cloud*, Adobe (last visited Nov. 20, 2022), https://www.adobe.com/what-is-adobe-experience-cloud.html; Mohsin Raza, *Why You Need a BI Platform and How to Choose One*, Medium (May 8, 2021), https://medium.com/nerd-for-tech/why-you-need-a-bi-platform-and-how-to-choose-one-168d797894f9.

Advertising technology has introduced a new generation of tracking and targeting software systems that make it possible to access, analyze and act upon a wealth of data on individual consumers, including purchasing behaviors, device use, social media communications, online interests, location and geographic movements, financial status, health concerns and much more. For example, "cross-device tracking" enables advertisers to follow and target users across all of their digital devices, determining through a single identifier that the same person who is on a social network is also viewing a TV program and later watching video on a mobile phone.[62] "Programmatic" advertising uses superfast computers to generate targeted marketing to someone in milliseconds, and is now the dominant global method for online marketing.[63] AI and machine-learning applications can assess how someone reacts to a particular ad or piece of content, and then deliver a subsequent series of ads with altered messaging specifically designed to be more appealing to the individual user. Through Google's "Director's Mix" ads, advertisers can more effectively target YouTube viewers. Facebook and many others offer similar systems.[64]

Paralleling these developments is a growing "kidtech" enterprise that uses many of these same advertising technologies with some adjustments in response to child data-protection laws and online safety concerns.[65] Kidtech services and other child-directed content providers argue that they are complying with privacy and data regulations by using so-called "contextual" marketing techniques, instead of the more intrusive data-driven behavioral or programmatic practices that trigger privacy issues. However, contemporary contextual advertising has been transformed through machine learning, natural language processing and other advanced techniques, all of which use data to identify and target users. As a consequence, many of the "kid-friendly" marketing operations do not differ substantially from those that are aimed at adults.[66] The fundamental goal is to facilitate advertisers' ability to reach and influence children, to forge ongoing relationships with them, and to create lifelong loyal consumers.

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[62] Dom Nicastro, *What Is Cross-Device Identification and How Can Marketers Use It?*, CMS Wire (June 27, 2018), https://www.cmswire.com/digital-experience/what-is-cross-device-identification-xdid-and-how-can-marketers-use-it/.

[63] *Programmatic Adspend to Exceed US$100bn for the First Time in 2019*, Zenith (last visited Nov. 20, 2022), https://www.zenithmedia.com/programmatic-adspend-to-exceed-us100bn-for-the-first-time-in-2019/.

[64] Google, *Director Mix: Create Customized Videos at Scale*, Think with Google (June 2021), https://create.withgoogle.com/tools/director-mix.

[65] Sarah Perez, *Kidtech Startup SuperAwesome is Now Valued at $100+ Million and Profitable*, TechCrunch (Feb. 19 2018), https://techcrunch.com/2018/02/19/kidtech-startup-superawesome-is-now-valued-at-100-million-and-profitable/.

[66] Paul Sawers, *YouTube Taps Machine Learning to Serve the Best Contextual Ads for Each User*, VentureBeat (Sept. 23 2019), https://venturebeat.com/2019/09/23/youtube-taps-machine-learning-to-serve-the-best-contextual-ads-for-each-user/.

F. <u>Surveillance advertising involves the collection of vast amounts of personal data of online users</u>

Pre-existing and traditional offline consumer data-collection practices have evolved into a pervasive network of digital tracking and profiling online. With programmatic advertising, the advent of social media and mobile smart phones, children are now experiencing full-on data surveillance covering all of their everyday life activities: data about their web-surfing activities, their likes and dislikes, social media activities with friends, metadata about their video viewing, app uses, geographic places visited, messages exchanged, conversations recorded, and images and other communications exchanged via computers, tablets, and phones.[67] Smart speakers, such as Amazon's Echo, and the emerging business based on "voice search" also gather extensive amounts of "home life data" based on family interactions and activities.[68] In addition, considerable data is collected on children through their school and educational activities.[69] In today's "extended reality" (virtual, augmented, and mixed reality), a person's movements, appearance, and surroundings as well as physiological response can be captured. The metaverse is a data gold mine for this highly sensitive data, which is why companies like Meta are investing so heavily in this technology.[70]

In 2017, research from SuperAwesome estimated that by the time a child turns 13, advertisers already possess over 72 million data points about them.[71] Neither children nor their parents can reasonably be expected to know what data is collected and how it is used, and to

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[67] Wolfie Christl, *Corporate Surveillance in Everyday Life: How Companies Collect, Combine, Analyze, Trade, and Use Personal Data on Billions*, Cracked Labs (June 2017), https://crackedlabs.org/dl/CrackedLabs_Christl_CorporateSurveillance.pdf.

[68] Veronica Barassi, *Home Life Data and Children's Privacy*, Child Data Citizen (Sept. 19, 2018), https://childdatacitizen.com/home-life-data-childrens-privacy/; Veronica Barassi, *Digital citizens? Data traces and family life*, 12 Contemporary Social Science 84 (2017).

[69] Natasha Singer, *Learning Apps Have Boomed in the Pandemic. Now Comes the Real Test.*, The New York Times (Mar. 17, 2021), https://www.nytimes.com/2021/03/17/technology/learning-apps-students.html; The Electronic Privacy Information Center (EPIC), *In the Matter of Online Test Proctoring: Companies Respondus, Inc.; ProctorU, Inc.; Proctorio, Inc.; Examity, Inc., and Honorlock, Inc.* (submitted Dec. 9, 2020), https://epic.org/wp-content/uploads/privacy/dccppa/online-test-proctoring/EPIC-complaint-in-re-online-test-proctoring-companies-12-09-20.pdf; *Online Learning Products Enabled Surveillance of Children: 48 Governments Recommended Unsafe Products During Pandemic, Evidence Shows*, Human Rights Watch (July 12, 2022), https://www.hrw.org/news/2022/07/12/online-learning-products-enabled-surveillance-children.

[70] Imran Ahmad & Tiana Corovic, *Privacy in a Parallel Digital Universe: The Metaverse*, Data Protection Report (Jan. 25 2022), https://www.dataprotectionreport.com/2022/01/privacy-in-a-parallel-digital-universe-the-metaverse/; Thomas Claburn, *Surprise! The Metaverse is Going to Suck for Privacy*, The Register (July 29, 2022), https://www.theregister.com/2022/07/29/metaverse_privacy_study/ .

[71] *SuperAwesome Launches Kid-Safe Filter to Prevent Online Ads from Stealing Children's Personal Data*, SuperAwesome (Dec. 6, 2018), https://www.superawesome.com/superawesome-launches-kid-safe-filter-to-prevent-online-ads-from-stealing-childrens-personal-data/.

exercise meaningful control over it. Data collected for one purpose can end up being used for entirely different and even harmful purposes. Moreover, the more data that has been collected, the more sensitive information is vulnerable to a data breach and use for malicious purposes such as identity theft.[72] This data pipeline fuels a myriad of marketing and advertising techniques that are honed to deliver results—from brand awareness to direct sales.

Important data collection also occurs around household- and family-directed surveillance mechanisms deployed by marketers and data companies, where identifying the presence of "children in the household" is a routine outcome.[73] The presence of children in a household, even in the aggregate, provides many insights to marketers, who can single out these households for better targeting of individual users. For example, Epsilon (now owned by ad giant Publicis) explains that it provides data elements that "identify the key demographics of households including age, number of people in household, presence of children, marital status, occupation, etc."[74] Companies such as Nielsen, which help marketers engage in more precise digital targeting, identify children and teens in households.[75] So do numerous data brokers offering digital targeting services. Disney's programmatic marketing apparatus, including its "Select"— which it says, "drives massive marketplace adoption and results"—provides marketers with data on "household characteristics" and other information.[76] By leveraging household data through identity and data integration services, marketers can learn that minors are members of a household and exploit that knowledge for more effective surveillance advertising and marketing, both in and out of the home.[77]

G. Surveillance advertising enables marketers to profile and manipulate children and teens via hyper-personalization and micro-targeting

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[72] Tracy Kitten, *Child Identity Fraud: A Web Of Deception And Loss,* Javelin, Javelin Strategy (Nov. 2, 2021), https://javelinstrategy.com/research/child-identity-fraud-web-deception-and-loss.
[73] *Families in Motion,* Experian (2019), https://assets.cengage.com/gale/help/dnow/Mosaic/MosaicGroupM_DescPortrait.pdf.
[74] *Epsilon: Consumer Data Insights – Premium – Trial*, Snowflake (last visited Nov. 20, 2022), https://www.snowflake.com/datasets/epsilon-consumer-data-insights-premium-trial/.
[75] *Nielsen: Homescan,* AmeriGEOSS (last visited Nov. 20, 2022), https://data.amerigeoss.org/dataset/nielsen-homescan.
[76] Snowflake, *supra* note 74; *Kids and Teens Drive Daytime TV Viewing and Streaming Increases During COVID-19*, Nielsen (Apr. 2020), https://www.nielsen.com/insights/2020/kids-and-teens-drive-daytime-tv-viewing-and-streaming-increases-during-covid-19/; *Infutor Data Solutions: Total Consumer Insights*, Snowflake (last visited Nov. 20, 2022), https://www.snowflake.com/datasets/infutor-data-solutions-total-consumer-insights/; Disney, *Fact Sheet: Disney Select Drives Massive Marketplace Adoption and Results,* DMED (Mar. 1 2022), https://dmedmedia.disney.com/fact-sheet-disney-select-drives-massive-marketplace-adoption-and-results-.
[77] *RampID Methodology*, LiveRamp, (last visited Nov. 20, 2022), https://docs.liveramp.com/connect/en/rampid-methodology.html.

Surveillance advertising and marketing comprises most of the advertising online, including advertising directed at children and teens.[78] It gives advertisers and marketers vast information about the likes, dislikes, habits, behaviors, and preferences of children and teens. Through their own first-party Big Data capabilities, those of adtech firms, or of ad delivery platforms such as Facebook, Google, or Tiktok, marketers can turn enormous amounts of granular information into actionable inferences. Profiling, the automated processing of data (personal and not) to derive, infer, predict, or evaluate information about an individual (or group of individuals), to analyze or predict an individual's identity, attributes, interests or behavior, is highly privacy invasive. Profiling is used to predict behaviors and characteristics; to score, rank, evaluate, assess, or exclude; and to otherwise inform decisions about which ads to suppress or to deliver to individuals or groups. It is the method by which advertising is targeted and personalized to online users, including children and teens. Facebook, for example, appears to profile minors the same way it profiles adults.[79]

Because of its pervasiveness, complexity, and opacity, especially when fully automated, profiling seriously undermines the notion of individual control. Profiling interferes with privacy in particular when it reveals previously unknown aspects about an individual, sometimes even unknown to the individual herself.[80] Profiling can involve personal data about one individual, but it also involves data about other people, those who share common attributes, including aggregate data, which is then used to draw inferences about all individuals and applied at the individual level. Look-alike modeling is a common profiling technique that helps marketers find their target

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[78] *See, e.g., Financials: Quarterly earnings*, Meta (last visited Nov. 20, 2022), https://investor.fb.com/financials/?section=quarterlyearnings; *Investor Relations: Earnings*, Alphabet (last visited Nov. 20, 2022), https://abc.xyz/investor/ (These data show that behavioral advertising comprised 97 percent and 81 percent of Facebook's and Google's 2021 revenues, respectively); Elena Yi-Ching Ho & Rys Farthing, *How Facebook Still Targets Surveillance Ads to Teen*s, Fairplay, Reset Australia, and Global Action Plan (2021), https://fairplayforkids.org/wp-content/uploads/2021/11/fbsurveillancereport.pdf; *Pills, Cocktails, and Anorexia*, Tech Transparency Project (May 4, 2021), https://www.techtransparencyproject.org/articles/pills-cocktails-and-anorexia-facebook-allows-harmful-ads-target-teens; *Ad Targeting*, TikTok Business Help Center (2022), https://ads.tiktok.com/help/article/ad-targeting (This page shows the targeting options for an advertiser on TikTok, including an option to target 13-17-year-olds); Meaghan Yuen, *supra* note 10.
[79] Dylan Williams, Alexandra McIntosh, and Rys Farthing, *Profiling Children for Advertising: Facebook's Monetisation of YoungPeople's Personal Data*, Reset Australia (Apr. 2021), https://au.reset.tech/uploads/resettechaustralia_profiling-children-for-advertising-1.pdf.
[80] *Data Is Power: Profiling and Automated Decision-Making in GDPR*, Privacy International (2017), https://privacyinternational.org/sites/default/files/2018-04/Data%20Is%20Power-Profiling%20and%20Automated%20Decision-Making%20in%20GDPR.pdf; Solon Barocas & Helen Nissenbaum, *Big Data's End Run around Anonymity and Consent*, Privacy, Big Data, and the Public Good: Frameworks for Engagement 44 (2014), https://www.cambridge.org/core/books/privacy-big-data-and-the-public-good/big-datas-end-run-around-anonymity-and-consent/0BAA038A4550C729DAA24DFC7D69946C.

audience.[81] While privacy rights are often framed as a matter of individual control over one's personal data, group profiling makes it clear that no online consumer can escape profiling when others are willing or have been coerced into disclosing personal information that implicates anybody else who happens to have similar observable traits.[82] Data capabilities also allow the modeling of individual behavior. According to sociologist and technology expert Zeynep Tufekci, by 2013, computational advances, such as the ability to conduct social network analysis and to analyze correlations at scale, were already allowing targeting of messages to "move beyond aggregated group–based analysis and profiling to modeling of specific individuals."[83]

This capability for individualized treatment of online users then makes children and teens in particular vulnerable to manipulation via surveillance advertising. As Commenters argue in Section II below, children's and teens' developing cognitive and behavioral skills make them more susceptible to these practices.

H. <u>Advances in behavioral science maximize the impact of marketing messages on brand loyalty and product sales and optimize the overall online experience for engagement</u>

Predictive analytics and commercial surveillance practices would not be as powerful today if it had not been for the tremendous effort to develop behavioral science models for how to persuade, influence, and move people to particular actions.[84] Advances in sophisticated persuasion and engagement research are driving the power of targeted advertising and marketing messages and the overall design and functionality of young people's online media experience.

Over approximately the last ten years, there has been an explosion of research specifically aimed at developing powerful advertising techniques and measuring the impact of digital advertising.[85] For example, Nielsen uses a variety of neuroscience techniques to maximize the impact of digital advertising on human behavior, including electroencephalography (EEG) to

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[81] *Back to Basics: What is Look-alike Modeling?*, Lotame (Mar. 2021), https://www.lotame.com/back-basics-look-alike-modeling/; *Look-alike Modeling: The What, Why, and How,* LiveRamp (Mar. 31, 2020), https://liveramp.com/blog/look-alike-modeling-the-what-why-and-how/; *About Lookalike Audiences*, Meta (last visited Nov. 20, 2022), https://www.facebook.com/business/help/164749007013531?id=401668390442328.

[82] Barocas & Nissenbaum, *supra* note 80.

[83] Zeynep Tufekci, *Engineering the public: Big data, surveillance and computational politics*, First Monday (last visited Nov. 19, 2022), https://journals.uic.edu/ojs/index.php/fm/article/view/4901.

[84] *Id.*

[85] Sidney Fussell, *The Endless, Invisible Persuasion Tactics of the Internet*, The Atlantic (Aug. 2, 2019), https://www.theatlantic.com/technology/archive/2019/08/how-dark-patterns-online-manipulate-shoppers/595360/; Selena Nemorin & Jr Oscar H. Gandy, *Exploring Neuromarketing and Its Reliance on Remote Sensing: Social and Ethical Concerns*, 11 International Journal of Communication 21 (2017).

monitor brain waves in order to identify "three key measures of engagement: attention, emotion, and memory;" "facial coding" to capture a variety of emotions; and eye-tracking technologies to measure how individuals engage with visual content on screens.[86] Through these techniques, marketers are able to refine their messages to embed themselves solidly into an individual's memory.[87] Neuromarketing services are available throughout the world, and are used by many companies to test ad techniques for products marketed both to adults and minors alike.[88]

Digital marketers also draw behavioral science to build features into online experiences aimed at directing user behaviors and influencing decision making. The tech industry uses the benign term "persuasive design" to describe these practices.[89] However, many of these design interfaces fall into the category of "dark patterns,"[90] especially when they are intended to "benefit an online service by coercing, steering, or deceiving users into making unintended and potentially harmful decisions."[91] Based on the insights of this "persuasive design" research, minors' online experiences have been inundated with design features that aim to keep minors longer and longer online, detracting from their overall wellbeing.[92]

I. Measurement and analytics systems are deployed to test and refine marketing strategies for maximum effect

Measurement and analytics systems have also evolved considerably and are now altering the overall operation of digital marketing, with an increasing focus on children. Simple, one-dimensional measures such as "clicks," "likes," views, and impressions are now only a tiny part of a highly complex system that includes detailed analytics covering the full range of a

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[86] Emily Barley, *Applying Neuroscience Techniques to Improve Ad Creative*, WARC (Apr. 2019), https://www.warc.com/content/article/warc-exclusive/applying_neuroscience_techniques_to_improve_ad_creative/126116.

[87] Bryn Farmsworth, *15 Powerful Examples of Neuromarketing in Action*, Imotions (Mar. 5, 2019), https://imotions.com/blog/neuromarketing-examples/.

[88] *See, e.g.,* Canada-based True Impact (last visited Nov. 20, 2022), https://trueimpact.ca/neuromarketing-studies/; Michael E. Smith & Carl Marci, *From Theory to Common Practice: Consumer Neuroscience Goes Mainstream*, Nielsen (Oct. 2016), https://www.nielsen.com/insights/2016/from-theory-to-common-practice-consumer-neuroscience-goes-mainstream; Neuro-Insight (last visited Nov. 20, 2022), https://www.neuro-insight.com/.

[89] Michael Craig, *Pixels of Influence – Breaking Down Persuasive Design Principles*, Toptal (last visited Nov. 20, 2022), https://www.toptal.com/designers/ux/persuasive-design-principles.

[90] Arunesh Mathur et al., *Dark Patterns at Scale: Findings from a Crawl of 11K Shopping Websites*, 3 Proc. of the ACM on Human-Computer Int., (Nov. 2019), https://arxiv.org/pdf/1907.07032.pdf.

[91] Øyvind H. Kaldestad, *New Study: Google Manipulates Users Into Constant Tracking*, Frobrukerrådet (Nov. 27, 2018), https://www.forbrukerradet.no/side/google-manipulates-users-into-constant-tracking;

[92] Center for Digital Democracy, Fairplay et al., *Petition for Rulemaking to Prohibit the Use on Children of Design Features that Maximize for Engagement* (submitted November 17, 2022), https://fairplayforkids.org/wp-content/uploads/2022/11/EngagementPetition.pdf.

consumer's digital media interactions.[93] New metrics can monitor not only how a viewer responds to an ad, but also whether that same user purchased the product featured in the ad.[94] The media and advertising industries have explored the creation of a new measurement standard[95] designed to provide a "comprehensive view of cross-platform, digital and mobile measurement of content and ads among children and teens aged two to 17."[96] Advertisers routinely create proprietary panels of children and adolescents who, along with their parents, agree to participate and are then provided with devices to enable continuous tracking of their online activities. This information is then used to develop effective models for targeting other young people. Measurement can also take place in real time, following users' movements, communications, and activities from moment to moment and measuring their reactions to various advertising and sales appeals. As a result, marketing techniques can be tested, refined, and tailored for maximum effect.[97]

J. Marketing and advertising drive the design and functionality of *all* commercial media experiences

Marketing and advertising are driving the nature of commercial messaging, overall design, interface, decision architecture, and functionality of minors' media experiences. Data collection, tracking, Big Data capabilities and machine learning and other types of artificial intelligence increasingly enable businesses to shape the entire digital experience of consumers, including those of children and teens. Far from being neutral spaces for social interaction, entertainment, and expression, digital platforms are structured to optimize engagement, foster habitual behaviors, and maximize the impact of marketing messages on brand loyalty and product sales. The concept of *engagement* has become a linchpin of tech industry Big Data

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[93] *What We Know About Audience Measurement*, WARC (Dec. 2018), https://www.warc.com/content/article/bestprac/what_we_know_about_audience_measurement/111992.
[94] Nadya Kohl, *PlaceIQ & comScore Announce a New Way To Measure Cross-Channel*, PlaceIQ (Oct. 3, 2017), https://www.placeiq.com/2017/10/placeiq-comscore-announce-a-new-way-to-measure-cross-channel/; *IRI and Alphonso Combine Industry's Largest TV Data Set with Consumer Shopping Data for Cross-Platform Sales Attribution Measurement*, Alphonso (Feb. 6, 2018), https://alphonso.tv/blog/pr/iri-alphonso-combine-industrys-largest-tv-data-set-consumer-shopping-data-cross-platform-sales-attribution-measurement/; Barry Levine, *Catalina Adds First Attribution Tracking Service*, Marketing Land (Jan. 11, 2019), https://marketingland.com/catalina-adds-first-attribution-tracking-service-255266.
[95] Nielsen Catalina, *True Mobile Measurement Is Here*, NCSolutions (last visited Nov. 20, 2022), http://www.ncsolutions.com/.
[96] *Realitymine Chosen By Coalition For Innovative Media Measurement To Conduct Youth Total Cross-Media Usage Measurement Project,* Coalition for Innovative Media Measurement (CIMM) (June 16, 2015), https://cimm-us.org/realitymine-chosen-by-coalition-for-innovative-media-measurement-to-conduct-youth-total-cross-media-usage-measurement-project/.
[97] *IRI Launches In-Flight Measurement Optimization Solution for Increased Speed in Obtaining Real-Time Campaign Insights*, IRi (Apr. 23, 2019), https://www.iriworldwide.com/en-us/news/press-releases/iri-launches-in-flight-measurement-optimization-solution-for-increased-speed-in-obtaining-real-time; *About Dynamic Creative,* Meta (last visited Nov 20, 2022), https://www.facebook.com/business/help/170372403538781?id=24455637968506.

strategy. Its purpose is to ensure that users are continuously and seamlessly interacting with digital media platforms, responding to brands and marketing, and generating data points. With children's content—and attention—increasingly distributed across tablets, smartphones, streaming devices, and other platforms, programmers and advertisers are embracing new interactive storytelling technologies, including games, virtual reality and augmented reality experiences, and creating advertising formats that can be integrated directly into these powerful, immersive environments, and designed to trigger impulsive actions.[98]

Commenters have argued elsewhere that "when minors go online, they are bombarded by widespread design features that have been carefully crafted and refined for the purpose of maximizing the time children and teens spend online and activities they engage in."[99] Commentators further explained:

> "The goals of the apps, games, and services used by minors are often at odds with minors' best interests. The vast majority of apps, games, and services that are popular among minors generate revenue primarily via advertising, and many employ sophisticated techniques to cultivate lucrative long-term relationships between minors and their brands. As a result, developers have an interest in getting and keeping users online as long as possible. This conflicts with users' interest in an online experience that contributes to, rather than detracts from, their overall wellbeing. To accomplish the goal of maximizing opportunities to generate ad revenue, apps, games, and services have developed—and are constantly tweaking, testing, and refining—sophisticated design features that maximize their users' time and activities online."

As Commenters argue in Section II, this produces a tremendous amount of harm.

Online, regardless of whether it is advertising or "entertainment" content, the design of digital material is increasingly automated and personalized in real-time to optimize for business interests outcomes that are driven by surveillance advertising. Digital interfaces are "dynamic, interactive, intrusive, and adaptive."[100] Content, such as written text and video, can be effectively machine generated and more and more content is likely to get generated in this way.[101] Autoplay

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[98] *Playable Ads for Brands, An IAB Playbook,* IAB *(*June 5, 2019), https://www.iab.com/insights/playable-ads-for-brands-playbook/; Idan Hershkovitz, *"Playable Ads: Our Top 3 Examples,"* Bidalgo (Aug. 5, 2018), https://bidalgo. com/blog/playable-ads-facebook-top-examples/.

[99] Center for Digital Democracy et al., *supra* note 92.

[100] Daniel Susser, Beate Roessler, and Helen Nissenbaum, *Online Manipulation: Hidden Influences in a Digital World*, 4 Georgetown Law Technology Review 1 (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3306006.

[101] Lauren E. Willis, *Deception by Design*, 34 *Harvard Journal of Law & Technology* 115 (Aug. 12 2020), https://ssrn.com/abstract=3694575.

and endless scroll, in combination with algorithmically generated and personalized content, already demonstrate how effective machine-generated content can be.

> K. <u>Tracking, profiling, and targeting does not go away in a cookie-less infrastructure and surveillance marketing will continue</u>

The Commission should not be falsely lulled by the privacy assurances made by Google and other surveillance marketing companies who claim that they are (or soon will) replace third party "cookies" with less intrusive data methods to target individuals. Among these, best known are Google's "Topics" (which replaced FLOC) and the Trade Desks UID 2.0.[102] The digital marketing industry has created multiple ways to build robust "identity" based profiles of people that maintain today's ability to hone in, target, and retarget an individual.[103] In 2021, there were 80 different "identity solutions."[104] Data integration company LiveRamp's "RampID" can deliver "addressable" targeting to 250+ consumers.[105] Oracle, which now owns numerous databroker entities, has an "audience trading platform with access to over 300 million users." Viant's "Household ID" says it enables targeting of "115 million tangible, meaningful households [enabling] marketers to reach real people across their devices, whether individuals are at home or away from home, without the use of cookies."[106] UDID 2.0, which has been adopted by many advertisers, publishers and platforms (including Disney) is also interoperable with other identity approaches, such as LiveRamp's—which further extends "post-cookie" surveillance capabilities.[107] For example, LiveRamp explains that its "authenticated people-based

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[102] Frederic Lardinois, *Google kills off FLoC, replaces it with Topics*, TechCrunch (Jan. 25, 2022), https://techcrunch.com/2022/01/25/google-kills-off-floc-replaces-it-with-topics/; Jessica Goodfellow, *Breaking down the post-cookie solutions: Unified ID 2.0*, PR Week (last visited Nov 20, 2022), https://www.prweek.com/article/1715601?utm_source=website&utm_medium=social.

[103] *Identity Resolution,* LiveRamp (last visited Nov. 20, 2022), https://liveramp.com/identity-resolution; *The Viant Household I,* Adelphic (last visited Nov. 20, 2022), https://www.adelphic.com/platform/planning-buying/viant-household-id.

[104] Sarah Sluis, *Confused About Identity? This List of 80 Identity Partners May (Or May Not) Help,* AdExchanger, (Apr. 12, 2021), https://www.adexchanger.com/online-advertising/confused-about-identity-this-list-of-80-identity-partners-may-or-may-not-help/; /; Adelphic, *The Viant Household ID*, https://www.adelphic.com/platform/planning-buying/viant-household-id.

[105] *The Trade Desk and LiveRamp to Lead Industry Effort to Bring New Privacy-First Interoperable ID Solution to Meet Emerging Requirements in Europe,* The Trade Desk *(*Feb. 28 2022), https://investors.thetradedesk.com/news-events/news-details/2022/The-Trade-Desk-and-LiveRamp-to-Lead-Industry-Effort-to-Bring-New-Privacy-First-Interoperable-ID-Solution-to-Meet-Emerging-Requirements-in-Europe-02-20-2022/default.aspx

[106] *The Viant Household ID*, Adelphic (last visited Nov. 20, 2022), https://www.adelphic.com/platform/planning-buying/viant-household-id.

[107] Sluis, *supra* note 104*;* Seraj Bharwani, *There's No Single Solution For Privacy-Protected Advertising,* AdExchanger (Sept. 27, 2022), https://www.adexchanger.com/data-driven-thinking/theres-no-single-solution-for-privacy-protected-advertising/; James Hercher, *Disney Integrates with The Trade Desk and UID2 In Pursuit Of Better Addressability,* AdExchanger (July 12, 2022),

identity" system enables "people-based audience building, targeting, frequency capping and measurement…to connect across web, in-app, and connected TV at the same time, extended reach across previously unaddressable environments such as Safari and Firefox, [and] ecosystem interoperability (e.g. Unified ID 2.0).[108]

A major reason why surveillance marketers' "end of cookies" privacy assurances are empty promises is the explosion of so-called "first-party" data collection and use. Youth-directed companies, including Google, Disney, Paramount/CBS, Amazon/Twitch and numerous others tout their ability to leverage first-party data.[109] There are now more companies also leveraging and expanding their first party data assets, including "Retail Media Networks" operated by Walmart, CVS, Kroger, Albertsons, Target and Dollar General, to name a few. These operations provide key details that can be used to hone into young people in their communities.[110]

Finally, the growing reliance on so-called "clean rooms" and other methods used to extrapolate insights and "signals" used by Disney, NBCU, Google, Amazon, Roku and others further supports robust surveillance-based targeting.[111]

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https://www.adexchanger.com/data-exchanges/disney-integrates-with-the-trade-desk-and-uid2-in-pursuit-of-better-addressability/.

[108] *The Renaissance of Digital Advertising,* LiveRamp (last visited Nov. 20, 2022), https://liveramp.com/lp/eb/renaissance-digital-marketing-eb-registration/.

[109] *See, e.g.,* Shannon Trainor Stark, *5 Keys to Creating Value with First-party Data,* Think with Google (Mar. 2021), https://www.thinkwithgoogle.com/future-of-marketing/digital-transformation/sustainable-first-party-data-strategy/; Catherine Perloff, *Disney Touts First-Party Data and Programmatic Enhancements in Upfront Kickoff,* Adweek (Mar. 3, 2022), https://www.adweek.com/convergent-tv/disney-touts-first-party-data-in-upfront-kickoff/ (subscription required); *Manager, CRM & First Party Data Initiatives,* Paramount (last visited Nov. 20, 2022), https://careers.paramount.com/Paramount%20Pictures/job/Los-Angeles-CA-90038/937471900/; *First-Party Data: What It Is, How to Use It, and Why It Matters Now More Than Ever*, LiveRamp (Oct. 12 2022), https://liveramp.com/explaining-first-party-data/; Ben Cicchetti, *2023 Game Plan: First-Party Data Strategy,* InfoSum (Oct. 19 2022), https://www.infosum.com/blog/2023-game-plan-first-party-data-strategy; *TikTok's Creator Marketplace API Opens Up First-Party Data,* PSFK (Nov. 19, 2021), https://www.psfk.com/2021/11/tiktoks-creator-marketplace-api-opens-up-first-party-data.html; *What is OTT? A Complete Guide to Over-the-Top,* Amazon (last visited Nov. 20, 2022), https://advertising.amazon.com/library/guides/what-is-ott.

[110] Rachel Hasson, *Retail Media Networks: Made Possible by LiveRamp,* eMarketer (Apr. 20, 2022), https://www.insiderintelligence.com/content/retail-media-networks.

[111] Asa Hiken, *NBCUniversal Opens Clean Room to Omnicom Amid First-party Data Arms Race*, AdAge (Mar. 14 2022), https://adage.com/article/digital-marketing-ad-tech-news/nbcuniversal-opens-clean-room-omnicom-amid-first-party-data-arms-race/2405456; *Disney's Proprietary Clean Room Data Solution Sets Its Sights on Measurement & Activation*, Disney (Mar. 2, 2022), https://dmedmedia.disney.com/disney-s-proprietary-clean-room-data-solution-sets-its-sights-on-measurement-activation-; Sarah Sluis, *Google Unveils PAIR For Clean-Room-Style Activation*, AdExchanger (Oct. 11, 2022), https://www.adexchanger.com/data-exchanges/google-unveils-pair-for-clean-room-style-activation/; James Hercher, *Amazon Is Leaning On Its Data Clean Room To Spur Ad Tech Growth,* AdExchanger (Oct. 26, 2022), https://www.adexchanger.com/commerce/amazon-is-

L. <u>The future of surveillance advertising and marketing knows no limits</u>

Unless the Commission acts to end surveillance marketing for minors, their privacy future is bleak. There is non-stop growth of data surveillance applications across platforms, devices and services. The same data gathering practices that operate in today's physical and online world will be further extended into the "metaverse." Connected devices and "intelligent" "Internet of Things" technologies, including digital billboards, will transmit a steady stream of information to kids and teens, enabling them to be targeted at school, play, and at home.

For example, children and teens are a key audience of streaming video, on "large" screens as well as mobile devices. In-home streaming on connected or "smart" TVs, including through such devices as Roku, have been engineered to further the data-surveillance complex— enabling both granular in-home targeting but also the ability to create data dossiers enabling marketers to track individuals on other devices and outside the home. On these "over-the-top" (OTT) video channels and programs, as well as with video gaming, there will be further integration of data-driven advertising with the content, as well as new ways to gather data (such as video QR codes and the further use of neuromarketing).[112] There are also rapidly emerging industry-wide approaches to determine whether an individual's "attention" has effectively been solicited, enabling more effective targeting and tracking.[113] This will further expand data surveillance on youth.[114]

The metaverse—the evolution of today's virtual reality and gaming operations that target children and teens—is already being shaped by the forces of marketing and data collection. Surveillance advertisers have closely examined how virtual reality applications facilitate more effective connections to minors. Industry research into the effectiveness of virtual reality

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leaning-on-its-data-clean-room-to-spur-ad-tech-growth/; *What Roku's Clean Room Means for Advertisers,* Roku (last visited Nov. 20, 2022), https://advertising.roku.com/resources/blog/rokus-clean-room.

[112] Liz Emery, *Mobile App + OTT – The Perfect Combination,* Kochava (last visited Nov. 20, 2022), https://www.kochava.com/mobile-app-ott-the-perfect-combination/; *Gamers Spend Twice As Long Viewing Intrinsic In-Game Ads Compared To Other Digital Channels, Reveals New Research From Lumen and Anzu,* MarTech Series (Oct. 6, 2022), https://martechseries.com/predictive-ai/predictive-marketing/gamers-spend-twice-as-long-viewing-intrinsic-in-game-ads-compared-to-other-digital-channels-reveals-new-research-from-lumen-and-anzu/;

[113] *DoubleVerify Launches New Attention Lab to Help Advertisers Maximize Campaign Performance,* Double Verify (Oct. 5, 2022), https://doubleverify.com/newsroom/doubleverify-launches-new-attention-lab-to-help-advertisers-maximize-campaign-performance/.

[114] *See, e.g.*, *OneView by Roku: The Ad-platform Built for TV Streaming,* Roku (last visited Nov. 20, 2022), https://advertising.roku.com/advertiser-solutions/oneview; *Connected TV,* The Trade Desk (last visited Nov. 20, 2022), https://www.thetradedesk.com/us/our-platform/dsp-demand-side-platform/connected-tv; *AdSmart,* NBCUniversal (last visited Nov. 20, 2022), https://together.nbcuni.com/advertising/oneplatform/adsmart/.

underscores how youth are comfortable and accepting of these environments.[115] Surveillance marketing practices for these new and emerging cyber worlds must be regulated now.

II. Surveillance advertising is unfair to minors in violation of Section 5
[Questions 4, 13-15, 17, 19]

As described in Section I, children and teens are now subject to widespread, inescapable online commercial surveillance that is driven by the prevailing business model of personalized targeted advertising and marketing. These practices are deployed throughout the entire global digital media system, encompassing all of the major social media networks, gaming platforms, mobile apps and video streaming services that young people embrace. Because of their hidden and complex nature, they are not easily discerned or well understood by children, parents, or regulatory authorities. But there is little doubt that commercial surveillance has a profound effect on youth's behaviors, values, and developing identities. And that surveillance advertising to children and teens is the main factor that shapes their unsafe and harmful online experiences.

Under the Commission's Policy Statement on Unfairness, a practice is *unfair* if (1) the practice results in substantial consumer injury; (2) the injury is not outweighed by countervailing benefits to consumers or competition, and (3) the injury cannot be reasonably avoided by consumers.[116] Surveillance advertising meets all three criteria.

A. Targeted advertising and data-driven marketing cause substantial injury to children and teenagers.

Substantial consumer injury typically involves either monetary harm or health or safety risks.[117] Substantial injury can be found in cases where there is a small amount of harm to a large number of consumers or significant harm to a small number of consumers.[118] As Commenters

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[115] *See, e.g.*, IAB, *AR Buyer's Guide,* (Mar. 2021), https://www.iab.com/wp-content/uploads/2021/03/IAB_AR-Buyers-Guide_2021-03.pdf; *Augmented and Virtual Reality: Find Facebook IQ Articles,* Meta (last visited Nov. 20, 2022), https://www.facebook.com/business/news/insights/tags/virtual-reality; Melissa Repko, *Walmart Enters the Metaverse with Roblox Experiences Aimed at Younger Shoppers,* CNBC (Sept. 26, 2022), https://www.cnbc.com/2022/09/26/walmart-enters-the-metaverse-with-roblox.html; *Welcome to the Wendyverse: Wendy's Opening First Restaurant in Virtual Reality,* PR News Wire (Mar. 30, 2022), https://www.prnewswire.com/news-releases/welcome-to-the-wendyverse-wendys-opening-first-restaurant-in-virtual-reality-301513961.html.
[116] Federal Trade Commission, *Policy Statement on Unfairness* (1980), https://www.ftc.gov/legal-library/browse/ftcpolicy-statement-unfairness.
[117] *Id.*
[118] *Id.*

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outlined in Section I, minors face an onslaught of surveillance marketing online, and targeted advertising is powered by a complex web of data collection, retention, sale, and use practices employed by a range of platforms and firms. Accordingly, Commenters address the harms of both the targeted marketing and the underlying design and data practices. Those harms include, but are certainly not limited to, violation of minors' privacy; manipulation; discouragement of creativity, expression, and play; the entrenchment of discrimination and bias and harms to physical and mental wellbeing.

Commenters note that despite the protections of the Children's Online Privacy Protection Act ("COPPA"), kids under the age of 13 widely experience these harms just as teenagers do. COPPA is limited to regulating websites and online services that are "directed to children" or whose operators have "actual knowledge" that they are collecting personal information from children under 13.[119] Major technology and social media companies have responded to COPPA by setting terms of service that officially ban children under the age of 13 from their platforms and, in some cases, by looking the other way when under-aged youth access them.[120] A sizeable proportion of the videos young children (0-8) watch on YouTube are not considered "made for kids" and therefore are not subject to data collection and use limitations that both COPPA and the FTC's 2019 settlement agreement with Google require.[121] And studies have consistently shown that even apps that are clearly child-directed nonetheless collect and share private identifiers with third parties without obtaining verifiable parental consent.[122] Accordingly, Commenters discuss the following harms as to both children under 13 years old and teenagers.

Commercial surveillance of children begins before they have the cognitive ability to understand digital privacy. Research demonstrates that minors have a limited understanding of

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[119] Children's Online Privacy Protection Act of 1998, 15 U.S.C. §§ 6501–6506; Children's Online Privacy Protection
Rule, 16 C.F.R. § 312, (Jan. 17 2013); Final Rule 78 Fed. Reg. 3971, 3977–78 (Jan. 17, 2013); *On the Hill: Professor Angela Campbell on Protecting Children's Privacy in the Digital Age,* Georgetown Law (July 10, 2019), https://www.law.georgetown.edu/news/on-the-hill-professor-angela-campbell-on-protecting-childrens-privacy-in-the-digital-age/ (For the most part, COPPA has not been proactively enforced.); Angela J. Campbell, *Children's Privacy Laws Must Be Strengthened and Enforced*, 12 JAMA Pediatrics 174 (2020), doi:10.1001/jamapediatrics.2020.3393; Further, research demonstrates that it is often violated. *See, e.g.*, Katie Joseff, *Behavioral Advertising Harms: Kids and Teens*, Common Sense Media (last visited Nov. 20, 2022), https://www.commonsensemedia.org/sites/default/files/featured-content/files/behavioral_-surveillance-advertising-brief.pdf.
[120] Kathryn C. Montgomery, *Youth and Surveillance in the Facebook Era: Policy Interventions and Social Implications*, 9 Telecommunications Policy 39, 771–786 (Oct. 2015), https://doi.org/10.1016/j.telpol.2014.12.006.
[121] Jenny S. Radesky et al., *Young kids and YouTube: How ads, toys, and games dominate viewing*, Common Sense Media (2020), 2020_youngkidsyoutube-report_final-release_forweb.pdf.
[122] Fangwei Zhao et al., *Data Collection Practices of Mobile Applications Played by Preschool-Aged Children*, JAMA Pediatr e203345 (2020).

data collections and data flows, and that they are particularly unaware of commercial surveillance. Further, teenagers may understand some of the online risks to their privacy, but they largely do not understand the scale or impact of commercial surveillance.

In general, younger children conceptualize online privacy as interpersonal. A study conducted by technology, psychology, and pediatrics experts at the University of Michigan explains:

> By the age of four, children have rich conceptual structures embedded in broad explanatory theories, including in the social domain. This allows them to develop rudimentary understandings of more complex, layered concepts, including privacy, secrecy, and deception. These initial concepts are typically rooted in their interpersonal experiences, and often tied to tangible objects or spaces. Most commonly, young children's descriptions of privacy include the ideas of being alone, being unobserved, and controlling access to physical places. Bathrooms, for example, are frequently associated with children's conceptions of privacy as concrete 'private' spaces.[123]

Put another way, "Children tend to define privacy as being alone, managing information, being unbothered, and controlling access to places."[124] The University of Michigan study found that children described privacy in terms of one-to-one observation by individual actors with access to their accounts, screens, or cameras.[125] According to another study, "Parents sharing embarrassing pictures with relatives or friends is a frequent example of how children feel their privacy is breached."[126] What most young children have not yet developed is a sense of autonomy, or the ability to "manipulate or otherwise control their privacy."[127]

Qualitative studies show that young children think of digital privacy issues in terms of individual actors who might access their information. Younger children believe data is stored locally, and when it is used by digital platforms, it is for their benefit. The University of

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[123] Kaiwen Sun et al., *They See You're a Girl if You Pick a Pink Robot with a Skirt: A Qualitative Study of How Children Conceptualize Data Processing and Digital Privacy Risks*, CHI Conference on Human Factors in Computing Systems at 2 (May 2021), https://dblp.org/rec/conf/chi/SunSASGRS21 (internal citations omitted).

[124] Priya Kumar et al., *No Telling Passcodes Out Because They're Private: Understanding Children's Mental Models of Privacy and Security Online*, 1 Proceedings of the ACM on Human-Computer Interaction 64, at 3, (November 2017), https://pearl.umd.edu/wp-content/uploads/2017/08/kumar-etal-2018-CSCW-Online-First.pdf.

[125] Sun et al., *supra* note 123, at 8-9.

[126] Mariya Stoilova et al., *Digital by Default: Children's Capacity to Understand and Manage Online Data and Privacy*, 8 Media and Commc'n 197, 200, (2020), http://dx.doi.org/10.17645/mac.v8i4.3407.

[127] Sun et al., *supra* note 123, at 2.

Michigan research team studied 4- to 10-year-olds, and the majority of children interviewed indicated that data was stored on their device, and that closing an app would end data collection and deleting an app would erase its data.[128] The children understood that the app could make recommendations to them, but also believed the platforms did not have information they did not "give" to the app (such as where they live).[129]

As children get older, it is still more likely that they will view privacy in interpersonal terms. A research team in the U.K. interviewed minors between the ages of 11 and 16. They broke down minors' conception of privacy down into three parts: "interpersonal (family, peers, community); institutional (such as the school or health service); and commercial (notably purchasing, marketing and data brokering)"[130] and concluded, "It was immediately apparent that children find it easier and more obvious to focus on interpersonal aspects of online privacy."[131]

The same researchers found that when older children do think in broader terms about privacy, their conception of institutional surveillance is still largely framed in terms of school or the government, not commercial actors, and they do not believe that the data institutions may collect about them is particularly interesting or useful. They found that the minors interviewed understood interpersonal privacy most readily, but they "rarely" consider that schools, doctors, government entities, or other institutions might hold data about them.[132] Ultimately, minors expected institutional monitoring to have "certain physical and symbolic boundaries." For example, they believed school monitoring to be limited to school premises and educational activities.[133]

The researchers found that minors were least aware of commercial data sharing, though they had some understanding they are targeted with advertisements.[134] Ultimately, minors may understand that what they see online is being personalized based on their online activity, but they do not make the connection that their online experience is being influenced: "Few children made the 'jump' from giving an account of targeted advertising to recognizing the algorithmic reshaping of the online environment. Nor did most consider how the same principles of personalization might have wider implications, biasing their online experience or differentiating it from that of their peers or others."[135]

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[128] *Id.* at 6–7.
[129] *Id.*
[130] Stoilova et al., *supra* note 126, at 198.
[131] *Id.* at 199.
[132] *Id.* at 200.
[133] *Id.* at 201.
[134] *Id.*
[135] *Id.*

Some minors apply moral values to data collection, expressing a belief that there are moral limits to what an institutional actor would do with their data. "[B]ecause they themselves feel offended that 'others' collect their 'private' data, they assumed that those others, be they individuals or companies, would feel it improper to keep or share their data."[136] Studies also reflect minors' belief that their data is not of interest to most outside actors. One research team interviewed minors between the ages of 11 and 18 to learn what they understood about data. They found that teenagers in their study had "a general concern about government looking at [their data]," but "the idea that outsiders connect with our data was only rarely linked to entities such as families (parents or caregivers), schools or corporations."[137] Some teens told Bowler and her colleagues that data collection is not a concern if "you're not doing anything wrong" or do not have anything to hide, and ultimately, it is unlikely they will face consequences for any data collected about them.[138] And some specifically indicated their data would be collected for "safety purposes" or because "it's necessary."[139] Similarly, Livingstone and her colleagues found that minors thought their data would be uninteresting to third parties because they do not do anything "interesting" or "sensitive."[140]

In sum, younger children do not understand the concept of commercial surveillance, and older children and even teens are unaware of the extent to which they are surveilled by commercial actors; how their online experiences are shaped by the vast amount of data collected and assessed by platforms and advertisers; and that their personal data might be used in ways that do not advance their best interests. It is against this backdrop that Commenters discuss the harms to minors of surveillance advertising.

1. **Surveillance advertising substantially harms minors by violating their privacy**

The commercial surveillance practices described in Section I fundamentally violate minors' right to privacy. Privacy is often defined as the "right to be let alone," as articulated by Samuel Warren and Louis Brandeis;[141] as being free from intrusions upon seclusion;[142] or as the

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[136] *Id.* at 202.

[137] Leanne Bowler et al., *It lives all around us: Aspects of data literacy in teen's lives*, 54 Association for Information Science & Technology 27, 34, (Oct. 24, 2017), https://doi.org/10.1002/pra2.2017.14505401004.

[138] Yu Chi et al, *Affective, Behavioral, and Cognitive Aspects of Teen Perspectives on Personal Data in Social Media: A Model of Youth Data Literacy,* Transforming Digital Worlds iConference, at 6, 8–9 (2018), https://link-springer-com.proxygt-law.wrlc.org/chapter/10.1007/978-3-319-78105-1_49.

[139] *Id.*

[140] Stoilova et al., *supra* note 126, at 203.

[141] Samuel Warren & Louis Brandeis, *The Right to Privacy*, 4 Harv. L. Rev. 193, 193–220, (Dec. 15 1890), https://archive.org/details/jstor-1321160/page/n1/mode/2up.

[142] Freedom From Intrusion Into The Private Life Or Affairs Of An Individual When That Intrusion Results From Undue Or Illegal Gathering And Use Of Data About That Individual, Iso/Iec 2382-8:1998, Definition 08-01-23.

right to maintain control over and confidentiality of information about oneself.[143] Privacy is recognized, among other places, in Amendments to the U.S. Constitution,[144] federal and state statutes,[145] the Universal Declaration of Human Rights,[146] and in international laws.[147]

While the United States often champions international human rights positions, it has failed to ratify crucial human rights documents, such as the Convention on the Rights of the Child (CRC) which enshrines the right to protection of privacy for children under 18.[148] However, the U.S. has ratified the International Covenant on Civil and Political Rights (ICCPR), a multilateral treaty which commits the United States to respect civil and political rights of individuals, including the right to privacy.[149] Minors should accordingly be entitled to the same privacy rights as adults in the United States.

Commenters suggest that in addition to specific injuries tied to the collection and use of data, the Commission should recognize that the loss of privacy through excessive data collection, use, and sharing is harmful in and of itself. The massive amount of data collection, without regard to any data minimization or purpose specification principles, reduces privacy and increases the risk from data breaches, unwanted secondary uses, and government abuses,[150] for example.[151] Many other privacy harms have been identified by privacy scholars Danielle Citron and Daniel Solove, including psychological harms, reputational damage, and restricting or unduly influencing consumers' choices.[152]

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[143] Arther E. Oldehoeft, *Foundations of a Security Policy for Use of the National Research and Educational Network,* National Institute of Standards and Technology (Feb. 1992), https://nvlpubs.nist.gov/nistpubs/Legacy/IR/nistir4734.pdf.

[144] U.S. Const. amend. IV.

[145] Cal. Privacy Rights and Enforcement Act of 2020, 1.81.5 Ca. Civ. Code § 1798.199.10.

[146] Universal Declaration of Human Rights. G.A. Res. 217A, U.N. GAOR, 3d Sess., 1st plen. mtg., U.N. Doc. A/810 (Dec. 12, 1948)

[147] International Covenant on Civil and Political Rights. G.A. Res. 2200A, U.N. GAOR, 21st Sess., C.3, U.N. Doc. A/6546 (Dec. 16, 1966)

[148] Convention on the Rights of the Child, G.A. Res. 44/25, U.N. GAOR, 44th Sess, Art. 16, (November 20, 1989), https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child

[149] Arther E. Oldehoeft, *supra* note 143.

[150] *See* Consumer Federation of America, Factsheet: Surveillance Advertising: How Does the Tracking Work? (Aug. 26, 2021), https://consumerfed.org/consumer_info/factsheet-surveillance-advertising-how-tracking-works/.

[151] Justin Brookman & G.S. Hans, *Why Collection Matters, Surveillance as a De Facto Privacy Harm,* Center for Democracy & Technology (Sept. 2013), https://cdt.org/wp-content/uploads/2018/08/September-2013-Brookman-Hans-Why-Collection-Matters.pdf.

[152] Danielle Keats Citron & Daniel Solove, *Privacy Harms*, 102 B. U. L. Rev. 793, 837, 841, 845 (Apr. 14 2022), https://ssrn.com/abstract=3782222.

For minors, these privacy risks are particularly concerning. The unrestrained availability of online personal data, trackers, and persistent identifiers puts their physical and mental health at risk. Furthermore, "Privacy is critical to the development of personality. Without the conditions of a private life and private spaces, the full potential of the individual and her/his fundamental right to human dignity are compromised."[153] As Commenters describe in the sections that follow, the harms that flow from this violation of minors' privacy are substantial.

2. **Surveillance advertising substantially harms minors through manipulation, which often increases their interest in harmful products**

Commercial surveillance practices associated with targeted advertising harm minors through manipulation. Minors are manipulated online through "influences that (1) are hidden, (2) exploit cognitive, emotional, or other decision-making vulnerabilities, and (3) are targeted."[154] As described in Section I, the forces that drive surveillance advertising are sprawling and sophisticated–and clearly target minors–but consumers know very little about how surveillance advertising works or impacts them. Adults have no real way to pull back the curtain to learn what happens to their consumer data, let alone minors. Further, as described above, minors are still developing critical cognitive skills, so they are particularly vulnerable to data-driven attempts to influence their behavior.

Marketers take advantage of kids' and teens' moods, social anxieties, and insecurities to manipulate them with marketing. For example, leaked Facebook documents revealed in 2017 that the company told advertisers it could help them target teens at moments when their moods are low. Facebook told advertisers it could not only target a range of user emotions, including "silly," "defeated," "overwhelmed," "useless" and "a failure," but also provide insights into times when teen users express those emotions: "[A]ccording to Facebook Australia, earlier in the week, teens post more about 'anticipatory emotions' and 'building confidence,' while weekend teen posts contain more 'reflective emotions' and 'achievement broadcasting.'"[155]

Platforms and advertisers can infer much more than moods from digital traces. Data patterns could indicate when a child is feeling more sensation-seeking or risky and impulsive, and recommend more risky content. Data can also be used to identify children who have weaker executive function and therefore could be "whales"—an industry term for young people who

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[153] Joseph A. Cannataci, *Special Rapporteur on the Right to Privacy,* United Nations (March 2021), https://www.ohchr.org/sites/default/files/Documents/HRBodies/CRC/GCChildrensDigitalEnvironment/2020/regional/un-special-rapporteur-right-to-privacy-2020-11-30.docx.

[154] Susser et al., *supra* note 100, at 27.

[155] Sam Machkovech, *Report: Facebook Helped Advertisers Target Teens Who Feel "Worthless"*, ArsTechnica (May 1, 2017), https://arstechnica.com/information-technology/2017/05/facebook-helped-advertisers-target-teens-who-feel-worthless/.

make a lot of in-game purchases.[156] And commercial surveillance enables advertisers to target young people based on their interests in potentially harmful products and behaviors. In one investigation, Tech Transparency Project and Reset Australia found that advertisers could target teens on Facebook and Instagram based on their interests in alcohol, tobacco, pharmaceuticals and extreme weight loss.[157]

These techniques can and have been used to target minors with marketing campaigns for unhealthy, unsafe, and age-inappropriate products. One example of this phenomenon is youth-targeted marketing of e-cigarette products. As the Commission is well aware, e-cigarette use has rapidly increased among teenagers.[158] The widespread digital marketing of these products (in particular, Juul vaping products) to young people contributed to their explosive popularity.[159] The Stanford Research into the Impact of Tobacco Advertising (SRITA) project found that "JUUL's advertising imagery in its first 6 months on the market was patently youth oriented" and that Juul's early marketing campaigns "initiated a surge in demand for their product among American youth."[160]

Youth-oriented e-cigarette campaigns have been demonstrably effective. In a 2016 national survey of middle and high school students, over 10 million minors reported exposure to e-cigarette advertising on the internet.[161] Tobacco marketing has historically successfully turned

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[156] Nathan Halverson, *Judge unseals trove of internal Facebook documents following our legal action,* Reveal News (Jan. 17, 2019), https://revealnews.org/blog/a-judge-unsealed-a-trove-of-internal-facebook-documents-following-our-legal-action/.

[157] Kaveh Waddell, *Facbook Approved Alcohol and Gambling Ads Targeting Teens*, Consumer Reports (July 27, 2021), https://www.consumerreports.org/advertising-marketing/facebook-approved-alcohol-gambling-tobacco-weight-loss-ads-targeting-teens-a1062200831/.

[158] Federal Trade Commission, *E-Cigarette Report for 2015–2018* at 1 (2022), https://www.ftc.gov/system/files/ftc_gov/pdf/E-Cigarette-Report-2015-2018.pdf.

[159] Jidong Huang et al., *Vaping versus JUULing: how the extraordinary growth and marketing of JUUL transformed the US retail e-cigarette market,* 28 Tobacco Control 146, 150 (Feb. 22, 2019), https://doi.org/10.1136%2Ftobaccocontrol-2018-054382 ("JUUL was one of the first major retail e-cigarette brands that relied heavily on social media to market and promote its products."); Julia Cen Chen-Sankey et al., E-cigarette Marketing Exposure and Subsequent Experimentation Among Youth and Young Adults, 144 Pediatrics, at 8 (Nov. 2019), https://doi.org/10.1542/peds.2019-1119; *see also* Erik Larson et al., *Juul Reaches $439 Million Settlement Over Marketing to Kids*, Bloomberg Law (Sept. 6, 2022), https://news.bloomberglaw.com/health-law-and-business/juul-reaches-439-million-multi-state-settlement-over-marketing.

[160] Robert Jackler et al., *JUUL Advertising Over its First Three Years On the Market,* Stanford University School of Medicine, at 27 (Jan. 31, 2019), https://tobacco-img.stanford.edu/wp-content/uploads/2021/07/21231836/JUUL_Marketing_Stanford.pdf.

[161] Kristy Marynak et al., *Exposure to Electronic Cigarette Advertising Among Middle and High School Students - United States, 2014–2016*, Centers for Disease Control and Prevention (Mar. 15, 2018), https://www.cdc.gov/mmwr/volumes/67/wr/mm6710a3.htm.

minors into tobacco consumers.[162] Studies show that the promotion of e-cigarette products is no different: it increases e-cigarette use among young people, as well as initiation of traditional "combustible" cigarette use.[163] Ultimately, medical professionals have warned that the marketing and popularity of e-cigarette products threatens to reverse decades of public health and policy work educating young people on the risks of tobacco use.[164] This example makes it clear that targeted marketing provides companies with a powerful tool to manipulate minors and generate interest in harmful products.

There have been a growing number of regulatory and enforcement actions to address this problem as to Juul products in particular.[165] It is not clear that these measures will eradicate digital marketing of e-tobacco products to minors, who have already found loopholes around Juul-targeted regulations.[166] Regardless of the effectiveness of federal or self-regulatory responses, the digital environment that has allowed minors to be targeted with campaigns for harmful products remains the same. Minors can still be manipulated with appealing surveillance advertising that entices them to try harmful products.

3. **Surveillance advertising substantially harms minors by discouraging creativity, expression, and play, which are essential to healthy development**

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[162] U.S. Dep't. of Health and Hum. Servs., *E-Cigarette Use Among Youth and Young Adults: A Report of the Surgeon General* at 157 (2016), https://www.cdc.gov/tobacco/data_statistics/sgr/e-cigarettes/pdfs/2016_sgr_entire_report_508.pdf ("For adolescents, studies have found cross-sectional and longitudinal associations between the intensity of cigarette marketing and initiation of smoking, brand awareness, brand preferences, attitudes toward smoking, susceptibility to smoking, and smoking behaviors"); Harold J. Farber et al., *American Academy of Pediatrics Technical Report: Protecting Children From Tobacco, Nicotine, and Tobacco Smoke*, 136 Pediatrics e1439, e1456 (Nov. 2015), https://doi.org/10.1542/peds.2015-3110 ("Tobacco promotion is an important cause of initiation of tobacco use among youth.").

[163] Brian P. Jenssen et al.; *American Academy of Pediatrics Policy Statement: E-Cigarettes and Similar Devices*. 143 Pediatrics 3–4 (Feb. 2019), https://doi.org/10.1542/peds.2018-3652.

[164] *AAP Policy Statement: E-Cigarettes and Similar Devices* at 4; U.S. Dep't. of Health and Hum. Servs., *supra* note 162, at 3.

[165] The FDA has taken action to prevent the manufacture and sale of e-cigarette products sold in flavors that appeal to young people and scrutinize social media marketing from popular e-cigarette brands. Press Release, *FDA Finalizes Enforcement Policy on Unauthorized Flavored Cartridge-based E-cigarettes That Appeal to Children, Including Fruit and Mint*, U.S. Food and Drug Admin. (Jan. 2, 2020), https://www.fda.gov/news-events/press-announcements/fda-finalizes-enforcement-policy-unauthorized-flavored-cartridge-based-e-cigarettes-appeal-children; Press Release, *FDA in Brief: FDA Requires Four E-Cigarette Brands to Provide Critical Information on Social Media Practices*, U.S. Food and Drug Admin. (Mar. 17, 2021), https://www.fda.gov/news-events/fda-brief/fda-brief-fda-requires-four-e-cigarette-brands-provide-critical-information-social-media-practices.

[166] Sheila Kaplan, *Teens Find a Big Loophole in the New Flavored Vaping Ban*, N.Y. Times, (Oct. 12, 2021), https://www.nytimes.com/2020/01/31/health/vaping-flavors-disposable.html.

The constant surveillance of commercial data practices harms minors because it constrains autonomy and thereby diminishes opportunities to experiment, learn, and grow. Privacy gives people space to experiment with identities and adopt and reject ideas. Privacy scholar Julie Cohen emphasizes that these opportunities for experimentation affect every aspect of life: "We do not experiment only with beliefs and associations, but also with every other conceivable type of taste and behavior that expresses and defines itself. The opportunity to experiment with preferences is a vital part of the process of learning, and learning to choose, that every individual must undergo."[167] Digital marketers profile minors in order to more effectively target them with advertising, as described in Section I. As a result, minors are reduced to data profiles and driven towards the behaviors and preferences that advertisers and platforms have selected for them.[168]

Play and experimentation are critical to minors' healthy development. Childhood and commercialization expert and Fairplay founder Susan Linn writes:

> The ability to play creatively is central to the human capacity to experiment, to act rather than react, and to differentiate oneself from the environment. It is how children wrestle with life and make it meaningful. Spirituality and advances in science and art are all rooted in play. Play promotes attributes essential to a democratic populace, such as curiosity, reasoning, empathy, sharing, cooperation, and a sense of competence—a belief that the individual can make a difference in the world. Constructive problem-solving, divergent thinking, and the capacity for self-regulation are all developed through creative play.[169]

While play and exploration look different across early childhood, preteen, and teen life stages, surveillance has a role in stifling this critical practice at every age. Optimizing for engagement leads to more time online which displaces the hands-on, offline creative play

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[167] Julie E. Cohen, *Examined Lives: Informational Privacy and the Subject as Object*, 52 Stan. L. Rev. 1373, 1425 (2000) (*citing* Anita L. Allen, *Coercing Privacy* (1999)).

[168] Jenny S. Radesky et al., *The vulnerability of younger children and pre-teens to advertising and profiling is well documented*, 146 Pediatrics (July 2020), https://publications.aap.org/pediatrics/article/146/1/e20201681/37013/Digital-Advertising-to-Children?autlogincheck=redirected?nfToken=00000000-0000-0000-0000-000000000000); Haley Hinkle, *Protecting Kids from Stealth Advertising in Digital Media,* Fairplay, 10-14 (July 18, 2022), https://fairplayforkids.org/wp-content/uploads/2022/07/influencer-comments.pdf.; While teens may be better equipped to resist advertising, they are less likely to do so when advertising is integrated into programming or is delivered by an influencer they identify with, as often is the case on social media , In addition, on TikTok, most of the content that young people consume is algorithmically selected by the platform and delivered through the "For You" feed, thereby limiting adolescent's autonomy and exploration.

[169] Susan Linn, *Commercialism in Children's Lives*, Fairplay, https://fairplayforkids.org/wp-content/uploads/archive/linn_commercialisminchildrenslives.pdf.

essential to young children's healthy development. In addition, when children are consistently fed content based on a data footprint that is driven by corporations' desire to sell, children are more likely to play or create using the script provided to them, instead of using their imaginations in ways that support skills like problem solving, self-regulation, and more.[170]

Regular surveillance and subsequent advertising also shape the content of children's values. For teens, the relationship between influencers or brands and teens' core values and ideals is complex. In some cases, teenagers may identify with brands that align with their core values. However, surveillance-driven content can bombard teens with brands determined based on companies' best interests rather than teens' authentic values, such as kindness, civic responsibility, or true creativity. Furthermore, the teenage years are characterized by the testing of different identities broadly, making exposure to new content, ideas, and identities critical to their development.[171] On the contrary, the commercial surveillance model can lock teens into specific and confining content types, which is opposed to their developmental needs at this stage in their life. It is also important to note that commercial surveillance can direct young people toward especially harmful content silos, like eating disorder content, which can lead to additional physical and psychological harms. In short, profiling minors in order to effectively target them with marketing based on the influence of advertisers limits kids' and teens' identity exploration.[172]

When children's play and creative expression is constrained, the impacts can last into adulthood. Through play, children learn executive functioning skills, including impulse control, working memory, and delayed gratification. These skills help children to work through hardship, self-regulate, and problem solve. For example, research demonstrates that play and creativity in childhood are key to math, science, and engineering learning.[173]

4. Surveillance advertising harms minors by perpetuating discrimination and bias

A growing body of academic research has documented how predictive analytics and the delivery of surveillance advertising and marketing messages can lead to disparate treatment and impacts on communities of color, low-income groups, and other vulnerable members of the population.[174] For example, studies have shown that some algorithmic decision-making may

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[170] Susan Linn, *The Case For Make Believe: Saving Play in a Commercialized World,* 33, The New Press, (2009).

[171] Wim Meeus et al., *Patterns of adolescent identity development: Review of literature and longitudinal analysis*, 19 Developmental Review 419 (1999).

[172] Yalda T. Uhls et al., *Benefits and Costs of Social Media in Adolescence*, 140 Pediatrics S67 (2017).

[173] Doris Bergen, *Play as the Learning Medium for Future Scientists, Mathematicians, and Engineers*, 1 Am. J. of Play 413 (2009), https://files.eric.ed.gov/fulltext/EJ1069001.pdf.

[174] *See, e.g.*, Solon Barocas & Andrew D. Selbst, *Big Data's Disparate Impact*, 104 Calif. L. Rev. 671 (2016), http://dx.doi.org/10.2139/ssrn.2477899 and https://www.citizen.org/wp-content/uploads/Racism-in-Racism-out.pdf.

disproportionately impact members of already disadvantaged groups.[175] Predictive analytics and personalization enable marketers to treat individuals or groups of consumers differently, which can result in various forms of marketplace discrimination. "Discrimination by association" has become commonplace in the online advertising industry, where people are grouped according to their assumed interests or inferred traits and offered or excluded from different products and services on the basis of their presumed affinity.[176] Researchers who studied Facebook's advertising systems found that even when housing and employment ads were deliberately placed to avoid any form of discriminatory targeting based on race or gender, the platform's ad-delivery optimization engine "skewed" the delivery of those ads along race and gender lines anyway due to ad-delivery optimization by the platform itself.[177]

Many commercial applications of AI where children and teens face this problem lie outside discrimination law, yet nonetheless create discriminatory harms. The Center for Digital Democracy's reports on digital food and retail marketing practices have documented the connection between the marketing of HFSS foods (foods high in fats, salts, and sugar) and the disparate impact on communities of color, particularly children, teens, and their families.[178] As an increasing number of companies use digital tools to collect an unending stream of data about consumer purchases, location, preferences, behaviors and more, these data reflect historical racial inequities. Jim Crow laws such as redlining, for example, have kept people of color out of certain neighborhoods and limited their access to such essential needs as affordable housing, education, jobs, health care services, and fresh foods.[179]

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[175] Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*, 9–10 Picador, St Martin's Press, (2018); Mary Madden et al., *Privacy, Poverty, and Big Data: A Matrix of Vulnerabilities for Poor Americans*, 95 Wash. Univ. L. Rev. 53, 55 (2017). *See also* Heidi Ledford, *Millions of Black People Affected by Racial Bias In Health-Care Algorithms: Study Reveals Rampant Racism In Decision-Making Software Used By US Hospitals—And Highlights Ways to Correct It*, 574 Nature 608 (Oct. 31, 2019), https://www.nature.com/articles/d41586-019-03228-6.

[176] Sandra Wachter & Brent Mittelstadt, *A Right to Reasonable Inferences: Re- Thinking Data Protection Law in the Age of Big Data and AI*, Colum. Bus. L. Rev. (2019), https://www.researchgate.net/publication/328257891_A_Right_to_Reasonable_Inferences_Re-Thinking_.

[177] Muhammad Ali et al., *Discrimination Through Optimization: How Facebook's Ad Delivery Can Lead to Skewed Outcomes,* arxiv.org (Sept. 12, 2019), https://arxiv.org/abs/1904.02095.

[178] Jeff Chester et al., *Does Buying Groceries Online Put SNAP Participants at Risk?*, Center for Digital Democracy (July 2020), https://www.democraticmedia.org/article/does-buying-groceries-online-put-snap-participants-risk; Chester, *supra* note 36.

[179] Brentin Mock, *Remember Redlining? It's Alive and Evolving*, The Atlantic (Oct. 8, 2015), http://www.theatlantic.com/politics/archive/2015/10/rememberredlining-its-alive-and-evolving/433065; Natasha N. Trifun, *Residential Segregation After the Fair Housing Act*, Human Rights Magazine, (Oct. 1, 2009), https://www.americanbar.org/groups/crsj/publications/human_rights_magazine_home/human_rights_vol3 6_2009/fall2009/residential_segregation_after_the_fair_housing_act/.

These disparities, in turn, can affect purchasing patterns, since where people live—and the products made available to them there—influence what people buy. The data are used to artificially construct segments or groups of online consumers and to classify and sort them according to the marketers' logic. The strong association between race and place in the U.S. and the use of geo-demographic datasets may result in outcomes where proxies for race–such as zip code–provide opportunities for race to reenter where it has been formally and politically excluded.[180] In general, once a population segment has shown a preference for a product, marketers then use purchasing data to segment these groups, or to create another group of consumers with the same characteristics through "look alike" modeling. The targeting of these segments can be very personalized, but nevertheless the construction of "types" of consumers means that consumers cannot escape a shared group treatment, which may lead, in turn, to cumulative disadvantage, and may exacerbate societal inequities.[181] These disparate treatments and impacts are just as likely for children and teens and their families as for adults.

5. **The design choices that websites, apps, and other services make to optimize data collection and targeted marketing harm minors**

As noted in Section I, because data collection is paramount to the surveillance advertising business model, digital platforms design their products to maximize engagement with a platform. Commenters CDD and Fairplay, along with 19 other signatories, outlined in their Petition for Rulemaking filed last week regarding engagement maximization techniques—attached in its entirety to this comment[182]—how engagement-maximizing design harms minors' mental health and wellbeing:

> Maximizing minors' time and activities online is linked with worse psychological wellbeing in minors in concrete and serious ways that cannot be ignored in the context of the current youth mental health crisis.
>
> Heavy users of digital media are more likely to be unhappy, to be depressed, or to have attempted suicide.[183] According to researchers reporting on the results of two nationally representative surveys of U.S. adolescents in grades 8 through 12, "the results show a clear pattern linking screen activities with higher levels of depressive

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[180] Oscar H. Gandy, Jr. , *Coming to Terms with Chance: Engaging Rational Discrimination and Cumulative Disadvantage*, Routledge 1st ed. (2009).
[181] *Id.*
[182] Center for Digital Democracy, Fairplay et al., *supra* note 92, at 6-11, 32.
[183] Jean M. Twenge & W. Keith Campbell, *Media Use Is Linked to Lower Psychological Well-Being: Evidence from Three Datasets*, 90 Psychol. Q., 311 (2019), https://pubmed.ncbi.nlm.nih.gov/30859387/.

symptoms/suicide-related outcomes and nonscreen activities with lower levels."[184] The researchers reported that suicide-related outcomes became elevated after two hours or more a day of electronic device use.[185] Among teens who used electronic devices five or more hours a day, a staggering 48% exhibited at least one suicide risk factor.[186] Of particular concern, a large and growing body of research indicates a strong link between time spent on social media—some of the services most known for using engagement-maximizing techniques—and serious mental health challenges.[187] Longer and more frequent social media use is associated with depression,[188] anxiety,[189] and suicide risk factors.[190]

Even if some of these documented associations are explained by children's underlying emotional challenges, the design features that are the subject of this Petition are likely to have differential negative effects on these youth. For example, children with more negative emotionality may seek endless scrolling as a means of dissociating from emotional distress,[191] yet may be recommended more negative content based on their previous behavior.[192] Minors with weaker impulse control may seek out video games as a satisfying activity, but may be more susceptible to the manipulative design patterns

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[184] Jean M. Twenge et al., *Increases in Depressive Symptoms, Suicide-Related Outcomes, and Suicide Rates Among U.S. Adolescents After 2010 and Links to Increased New Media Screen Time*, 6 Clinical Psychol. Sci. 3, 9, (2018). See also generally Jane Harness et al., Youth Insight About Social Media Effects on Well/Ill-Being and Self-Modulating Efforts, 71 J. Adolescent Health, 324-333 (Sept. 1, 2022), Amy Orben et al., Windows of Developmental Sensitivity to Social Media, 13 Nature Comm., 1649 (2022).

[185] *Id.*

[186] *Id.*

[187] *See, e.g.*, K.E. Riehm et al., *Associations Between Time Spent Using Social Media and Internalizing and Externalizing Problems Among US Youth*, 76 JAMA Psychiatry, 1266 (2019), https://doi.org/10.1001/jamapsychiatry.2019.2325; N. McCrae et al., *Social Media and Depressive Symptoms in Childhood and Adolescence: A Systematic Review*, 2 Adolescent Res. Rev., 315 (2017), https://doi.org/10.1007/s40894-017-0053-4; H. Allcott et al., *The Welfare Effects of Social Media*, 110 Econ. Rev. Am. 629 (2020), https://www.aeaweb.org/articles?id= 10.1257/aer.20190658.

[188] Twenge & Campbell, *supra* note 183, at 312.

[189] Royal Society for Public Health, *#StatusOfMind: Social Media and Young People's Mental Health and Wellbeing* 8 (May 2017),

[190] Twenge & Campbell, *supra* note 183.

[191] Amanda Baughan et al., *"I Don't Even Remember What I Read": How Design Influences Dissociation on Social Media*, CHI Conference on Human Factors in Computing Systems, 1-13 (2022), https://dl.acm.org/doi/pdf/10.1145/3491102.3501899.

[192] Kait Sanchez, *Go Watch this WSJ investigation of TikTok's Algorithm,* The Verge (July 21, 2021), https://www.theverge.com/2021/7/21/22587113/tiktok-algorithm-wsj-investigation-rabbit-hole.

common in popular games, such as interaction-by-design (asking users to return to the game, even overnight, to obtain rewards), leading to less time sleeping.

i. Harm to body image

Design features that maximize time spent on social media can also lead to heightened exposure to negative body image–related content, which increases minors' susceptibility to poor body image and, consequently, disordered eating. A study of data from 7th and 8th graders published in 2019 in the *International Journal of Eating Disorders* "suggest[ed] that [social media], particularly platforms with a strong focus on image posting and viewing, is associated with elevated [disordered eating] cognitions and behaviors in young adolescents."[193] In another study, researchers found a positive correlation between higher Instagram use and orthorexia nervosa diagnoses.[194] Personal stories from sufferers of disordered eating have highlighted the link to social media.[195]

Time spent on social media can harm minors' body image and increase their susceptibility to disordered eating in multiple ways. First, visual social media platforms trigger social comparison as minors compare their appearance to others, including influencers. For example, an exploratory study performed internally at Meta concluded that 66% of teen girls on Instagram experienced negative social comparison, and 52% of those who experienced negative social comparison attributed this experience to viewing images on the platform that were related to beauty.[196] The documents Frances Haugen shared with the *Wall Street Journal* in 2021 revealed that Facebook has been aware at least since 2019 that "[w]e make body image issues worse for one in three teen girls."[197]

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[193] Simon M. Wilksch et al., *The Relationship Between Social Media Use and Disordered Eating in Young Adolescents*, 53 Int. J. Eat. Disord. 96, 104 (2020), https://doi.org/10.1002/eat.23198.
[194] Pixie G. Turner & Carmen E. Lefevre, *Instagram Use Is Linked to Increased Symptoms of Orthorexia Nervosa*, 22 Eating Weight Disorders 277, 281 (2017), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5440477/.
[195] *See, e.g.*, Jennifer Neda John, *Instagram Triggered My Eating Disorder*, Slate (Oct. 14, 2021), https://slate.com/technology/2021/10/instagram-social-media-eating-disorder-trigger.html; Clea Skopeliti, *'I Felt My Body Wasn't Good Enough': Teenage Troubles with Instagram*, The Guardian (Sept. 18, 2021), https://www.theguardian.com/society/2021/sep/18/i-felt-my-body-wasnt-good-enough-teenage-troubles-with-instagram.
[196] Spence v. Meta Platforms, N.D. Cal. Case No. 3:22-cv-03294 at 9 (June 6, 2022) (citing Facebook Papers: "Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the US" (March. 2020), at p. 8).
[197] Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show*, W.S.J. (Sept. 14, 2021), https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739.

Haugen has explained how this becomes a vicious feedback cycle for minors: they feel bad about themselves so they go to social media for distraction in order to self-soothe, only to end up seeing the type of posts that led to their anxiety in the first place.[198] Negative self-comparison on social media is experienced by cisgender girls and boys; specifically, boys feel pressure to lose weight and build muscle as a result of the muscular men they see on TikTok, Instagram, and YouTube. Eliot, a 17-year-old, told the *New York Times*, "Girls discuss those pressures more, but it's completely the same for boys."[199]

Why? Frequent social comparison is a key driver of subjective well-being and teens say IG makes this problem worse.

66% of teen girls on IG experience negative social comparison (compared to 40% of teen boys)

52% Of teen girls who experienced negative social comparison on Instagram, said it was caused by images related to beauty

32% of teen girls said that when they felt bad about their bodies, Instagram made them feel worse

A slide from an internal presentation at Meta indicates that "beauty"-related content on Instagram drives negative social comparison among teen girls.[200]

Second, platforms use algorithms to deliver content related to topics or themes that the platform believes will maximize a user's time spent on the platform. These recommendation systems create "bubbles" or "rabbit holes" of content around a specific theme and also expose users to increasingly extreme content on a given topic.[201] This has

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[198] Allison Slater Tate, *Facebook Whistleblower Frances Haugen Says Parents Make 1 Big Mistake with Social Media*, TODAY (Feb. 7, 2022), https://www.today.com/parents/teens/facebook-whistleblower-frances-haugen-rcna15256.

[199] Alex Hawgood, *What Is 'Bigorexia'?*, N.Y. Times (Mar. 5, 2022, updated May 17, 2022), https://www.nytimes.com/2022/03/05/style/teen-bodybuilding-bigorexia-tiktok.html.

[200] *Teen Girls Body Image and Social Comparison on Instagram–An Exploratory Study in the U.S.*, W.S.J. at 9 (Sept. 29, 2021), https://s.wsj.net/public/resources/documents/teen-girls-body-image-and-social-comparison-on-instagram.pdf.

[201] Fairplay, *Designing for Disorder: Instagram's Pro-eating Disorder Bubble* at 1 (Apr. 2022), https://fairplayforkids.org/wp-content/uploads/2022/04/designing_for_disorder.pdf; *Inside TikTok's Algorithm: A WSJ Video Investigation*, W.S.J. (July 21, 2021), https://www.wsj.com/articles/tiktok-algorithm-video-investigation-11626877477.

proven true for negative body image and pro-eating disorder content.[202] Indeed, research shows that social media platforms' content selection algorithms have pushed disordered eating and harmful diet techniques to teenage girls.[203] Girls who express an interest in dieting or dissatisfaction with their looks are bombarded with content targeted to these insecurities and often pushed to more extreme content such as pro-anorexia posts and videos. And because platforms know teenage girls disproportionately engage with this type of content,[204] even minor users who do not express interest in these topics are often delivered this content. Indeed, when Petitioners registered a TikTok account for a fictitious 14-year-old, Petitioners quickly were fed videos advertising breast enhancement oil and weight loss patches—without having followed any other accounts or having searched for terms related to these topics.[205]

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[202] Fairplay, *supra* note 201, at 6-7.

[203] *See generally id.*; Jim Waterson & Alex Hern, *Instagram 'Pushes Weight-Loss Messages to Teenagers'*, The Guardian (July 19, 2021), https://www.theguardian.com/society/2021/jul/20/instagram-pushes-weight-loss-messages-to-teenagers.

[204] *See* Fabrizio Bert et al., *Risks and Threats of Social Media Websites: Twitter and the Proana Movement*, 19 Cyberpsychology, Behav. Soc. Netw. (Apr. 2016), https://pubmed.ncbi.nlm.nih.gov/26991868/.

[205] We received these prompts on a TikTok account we created using the self-provided birthdate of August 17, 2008.
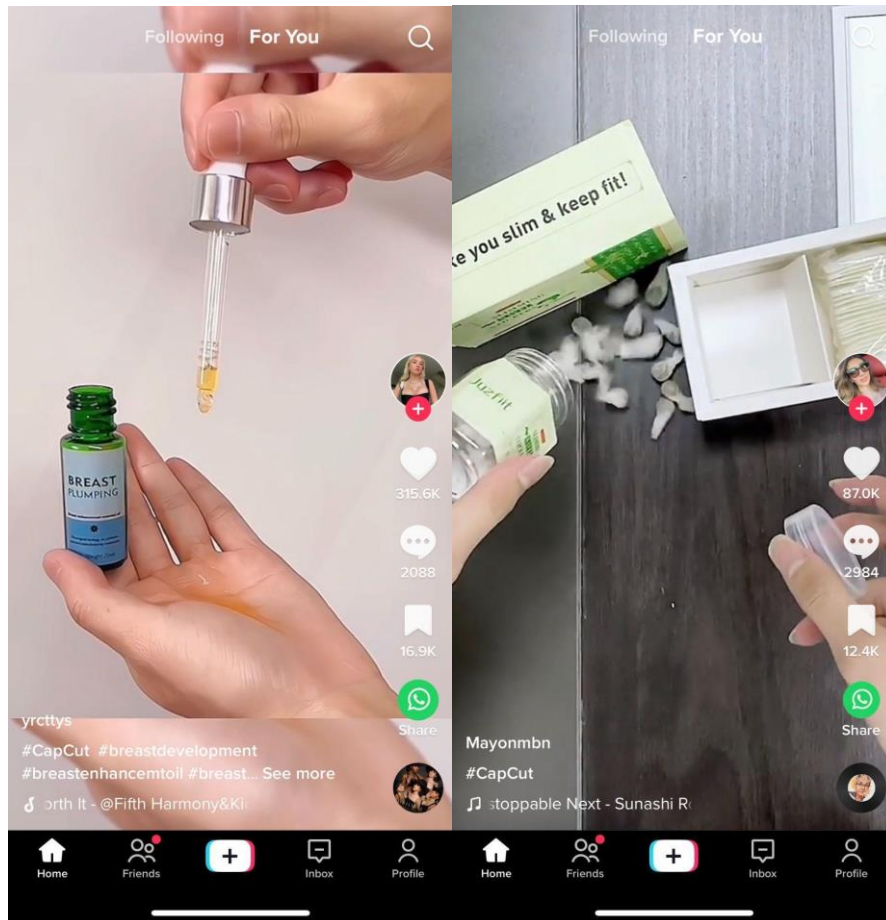
Petitioners registered a TikTok account as a 14-year-old. While scrolling through the app, Petitioners were shown ads for products related to breast enhancement and weight loss.[206]

The harm that social media does to minors' body image and eating habits has been widely discussed in public discourse in recent months, but even as of the filing of this Petition, content depicting disordered eating remains widely available to minors and profitable to platforms,[207] and even popular among teens, who are exposed to more of it as they spend more time online.

ii. Risk of problematic internet use

Maximizing time and activities online also fosters "problematic internet use"—psychologists' term for excessive internet activity that exhibits addiction, impulsivity, or

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[206] *Id.*

[207] *See generally* Fairplay, *supra* note 201.

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compulsion.[208] Indeed, the design features discussed in this Petition plainly impede minors' ability to put their devices down, even when they want to use them less. For example, a high school student told Common Sense Media,

> One of the challenges I face with social media is getting off it. Once I get on, I have to really force myself off it because it's so addictive. All I'm doing is scrolling, but I'm subconsciously looking for an end so I can feel accomplished. But the scrolling never stops.[209]

Similarly, a teen told Harvard researchers Emily Weinstein and Carrie James she wants to cut back on her TikTok use, but finds it extremely difficult:

> I can sit there for hours on end just scrolling through this app . . . . I can't even count how many times I have fallen asleep on TikTok. It has taken over my life.[210]

These teens' experiences reflect those of the majority of their peers. A 2016 nationwide survey of minors ages 12 to 18 found that 61% of teens thought they spent too much time on their mobile devices, and 50% felt "addicted" to them.[211] In a 2022 Pew Research survey, 35 percent of teens said they are on YouTube, TikTok, Instagram, Snapchat, or Facebook "almost constantly."[212] Over half of teens who describe being online or on social media "almost constantly" said they use social media platforms too much.[213]

Research indicates that problematic internet use may disproportionately impact Black and Hispanic/Latino minors. Common Sense Media reports that white preteens (ages 8-12) average 4.5 hours of screen time use for entertainment daily, compared to

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[208] Chloe Wilkinson et al., *Screen Time: The Effects on Children's Emotional, Social, and Cognitive Development* at 6 (2021), https://informedfutures.org/wp-content/uploads/Screen-time-The-effects-on-childrens-emotional-social-cognitive-development.pdf.

[209] Katie Joseff, *Social Media Is Doing More Harm than Good*, Common Sense Media (Dec. 17, 2021), https://www.commonsensemedia.org/kids-action/articles/social-media-is-doing-more-harm-than-good.

[210] Emily Weinstein & Carrie James, *Behind Their Screens: What Teens Are Facing (And Adults Are Missing)*, MIT Press at 31 (2022).

[211] Common Sense, *Dealing with Devices: Parents* 10-11 (2016), https://www.commonsensemedia.org/sites/default/files/research/report/commonsense_dealingwithdevices-topline_release.pdf.

[212] Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Research Center, (Aug. 10, 2022), https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022.

[213] *Id.*

Black preteens (6.5 hours) and Hispanic/Latino preteens (7 hours). Teenagers spend even more time online: white teens spend approximately 8 hours per day on screens for entertainment, and Black and Hispanic/Latino teens approximately 10 hours per day.[214] Fifty-six percent of Black teens and 55% percent of Hispanic teens describe being online "almost constantly," compared with 37% of white teens.[215]

Problematic internet use, in turn, is linked to a host of additional problems. For example, in one study of 564 minors between the ages of 7 and 15 spearheaded by the Child Mind Institute in New York, researchers found that problematic internet use was positively associated with depressive disorders, Attention Deficit Hyperactivity Disorder, general impairment, and increased sleep disturbances.[216] A meta-analysis of peer-reviewed studies involving cognitive findings associated with problematic internet use in both adults and adolescents found "firm evidence that PIU . . . is associated with cognitive impairments in motor inhibitory control, working memory, Stroop attentional inhibition and decision-making."[217] Another study of over 11,000 European adolescents found that among teens exhibiting problematic internet use, 33.5% reported moderate to severe depression; 22.2% reported self-injurious behaviors such as cutting; and 42.3% reported suicidal ideation.[218] The incidence of attempted suicide was also ten times higher for teens exhibiting problematic internet use than their peers who exhibited healthy internet use.[219]

[...]

Socially manipulative design features that leverage users' desire for social relationships to encourage increased activity and time spent on a platform are extremely common, including in games and services used heavily by minors. These design features

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[214] Common Sense, *The Common Sense Census: Media Use by Tweens and Teens* at 12 (2021), https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf. These hours may include multitasking on several screens at once.

[215] Vogels et al., *supra* note 212.

[216] Restrepo et al., *Problematic Internet Use in Children and Adolescents: Associations with Psychiatric Disorders and Impairment*, 20 BMC Psychiatry 252 (2020), https://doi.org/10.1186/s12888-020-02640-x.

[217] Konstantinos Ioannidis et al., *Cognitive Deficits in Problematic Internet Use: Meta-Analysis of 40 Studies*, 215 British Journal of Psychiatry 639, 645 (2019), https://pubmed.ncbi.nlm.nih.gov/30784392/.

[218] Michael Kaess et al., *Pathological Internet use among European adolescents: psychopathology and self-destructive behaviors*, 23 Eur. Child & Adolescent Psychiatry 1093, 1096 (2014), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4229646/.

[219] *Id.*

are particularly prevalent—and minors likely are most often exposed to them—on social media.

Minors are particularly vulnerable to social manipulation techniques. Younger adolescents have specific developmental needs for social connectedness and are particularly attuned to social validation.[220] This can "lead to greater relinquishing of security in certain arenas to gain social validation and belonging, for example, disclosing publicly to participate in online communities and accrue large amounts of likes, comments, and followers."[221] Emily Weinstein and Carrie James write:

> [T]o tweens and teens, the kind of "rewards" social media promise are even more meaningful. Teens are primed to crave and value social validation, which is part of how they make sense of where they fit into their social worlds. Their biological sensitivity to social feedback makes them more susceptible to the pull of social media, which is at the ready with a promise of 24/7 access to likes and praising comments. Capacities for self-regulation and impulse control are also a work in progress during the teen years, which adds to the challenge of pulling away.[222]

Many social manipulation design features induce anxiety in minors that they or their content may not be as popular as that of their peers'. In the words of a Massachusetts high school student who spoke with Common Sense Media, "[I]f you get a lot of likes, then 'Yay,' you look relevant, but then if you don't get a lot of likes and/or views, it can completely crush one's confidence. Especially knowing that you're not the only one who's able to see it."[223] Not only are minors spotting and seeing posts, but now they are obsessing over the popularity of their and others' posts. These factors all converge to create a feedback loop, where because minors crave this social reinforcement, they seek it out, and ultimately are unequipped with the tools to protect

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[220] Nicholas D. Santer et al., *Early Adolescents' Perspectives on Digital Privacy,* Algorithmic Rights and Protections for Children at 6, 30 (2021), https://wip.mitpress.mit.edu/pub/early-adolescents-perspectives-on-digital-privacy/release/1.

[221] *Id.* at 6 (citing J.C. Yau & S. M. Reich, *"It's Just a Lot of Work": Adolescents' Self-Presentation Norms and Practices on Facebook and Instagram*, 29 J. Res. on Adolescence 196, 196-209 (2019)).

[222] Weinstein & James, *supra* note 210, at 33 (2022) (citing Lucy Foulkes and Sarah-Jayne Blakemore, *Is There Heightened Sensitive to Social Reward in Adolescence?*, 40 Current Opinion Neurobiology 81 (2016)).

[223] Joseff, *supra* note 209.

themselves against the allure of "rewards" that these manipulative social media designs purportedly promise.[224]

B. These injuries cannot reasonably be avoided by minors or their families

Children, teenagers, and their parents cannot reasonably avoid these injuries. First, simply abstaining from using apps, websites, and other online services is not an effective solution. A number of factors converge to draw minors onto social media platforms in particular. As Commenters outlined in their Petition on engagement maximization practices, minors have a developmental need for social connectedness and are particularly susceptible to social rewards, and staying off of those platforms can leave teens feeling socially isolated.[225] Further, minors do not only experience commercial surveillance on the social media and gaming platforms where they relax and connect with friends. As outlined in Section I, commercial surveillance spans a wide range of apps, websites, and services, and it begins essentially from birth. Digital platforms are increasingly essential to civic participation and social engagement for all families and nearly impossible to avoid.

Second, as the research outlined in Section II demonstrates, minors do not understand commercial surveillance. Some may argue that parents and guardians should be responsible for protecting minors' privacy, but platforms are not designed to make this task easy for families. As Commenters demonstrated in their Petition on engagement maximizing practices, many platforms are specifically designed to maximize the amount of data collected from kids and teens. Privacy policies and data collection disclosures are not stated in terms that adults without technical knowledge can easily understand—if they even have time to read the policies to begin with.[226] A system as complex and pervasive as today's surveillance advertising apparatus is far beyond the scope of any individual family.

Ultimately, minors and their families cannot avoid these practices in order to protect children and teenagers from harm. The Commission should utilize its authority to implement rules that shift responsibility for these harms away from families and onto platforms.

C. There are no countervailing benefits to consumers or competition that outweigh these harms

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[224] *See* discussion *infra* Section III.B.3, *Minors are more susceptible to social manipulation and peer pressure applied by design features that maximize for online engagement.*

[225] Center for Digital Democracy, Fairplay et al., *supra* note 92.

[226] Geoffrey Fowler, *I Tried to Read All My App Privacy Policies. It was One Million Words,* The Washington Post (May 31, 2022), https://www.washingtonpost.com/technology/2022/05/31/abolish-privacy-policies/.

The FTC weighs the risk of injury to consumers against the benefits of the practice to determine whether the net effect is injurious to consumers.[227] These practices do not benefit competition and instead create a "race to the bottom" whereby any company that does not deploy these unfair practices risks losing out on the financial benefits enjoyed by competitors who do.[228] Those financial benefits then flow to the companies themselves, not to users. Additionally, the vast information asymmetries described in Section I above prevent the market from correcting this problem. Surveillance advertising practices are largely unknown to minors and their families, so they cannot meaningfully choose to use platforms and services with better policies.

As demonstrated above, surveillance advertising meets the FTC's criteria for an unfair practice. We therefore urge the Commission to promulgate a rule that prohibits targeted marketing to children and teenagers. A proposed rule is included in Appendix A.

III. <u>Surveillance advertising is deceptive to children and teenagers</u>

The Commission's Policy Statement on Deception sets out a three-part test for deception. First, the Commission assesses whether there has been a representation, omission or practice that is likely to mislead the consumer. Second, where the representation is directed to a particular group, the Commission examines reasonableness from the perspective of that group. Third, the Commission determines whether the representation, omission, or practice is material, i.e., whether it is likely to affect the consumer's conduct or decision with regard to a product or service.[229]

The representations made about surveillance advertising by adtech companies, social media companies, apps, and games are likely to mislead minors and their parents and guardians. As Commenters established in Section I, adtech firms, ad delivery platforms, and marketers purposefully and profitably direct data collection and targeted marketing practices at minors. As explained in Section II, these practices are likely to mislead reasonable children and teenagers, who have not fully developed key skills around digital privacy and assessing risk.

Many companies also mislead minors and their guardians by omission because they fail to disclose important information about their practices, including their use of manipulative design practices that maximize minors' online engagement for the purpose of maximizing

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[227] Policy Statement on Unfairness, *supra* note 116.

[228] Susser et al, *supra* note 100; *see also* Ryan Calo, *Digital Market Manipulation*, 82 Geo. Wash. L. Rev. 995, 10001 (2014), (citing Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 Harv. L. Rev. 1420, 1564–65 (1999)); *see also* Stucke, Maurice E., *Addressing Personal Data Collection as Unfair Methods of Competition* (Aug. 9, 2022). Berkeley Technology Law Journal, Forthcoming, University of Tennessee Legal Studies Research Paper No. 439, Available at SSRN: https://ssrn.com/abstract=4186226 or http://dx.doi.org/10.2139/ssrn.4186226.

[229] Policy Statement on Unfairness, *supra* note 116.

opportunities for data collection and ad display. In many instances, companies know that these practices are harmful, yet fail to disclose that information to minors and their families.

These misrepresentations and omissions are material. These practices impact the choices of minors and their families every day as they use websites, apps, and services without an understanding of the complex system of data collection, retention, and sharing that is used to influence them online. In addition, according to the FTC's Policy Statement on Deception, "The Commission . . . considers claims or omissions material if they significantly involve health, safety, or other areas with which the reasonable consumer would be concerned."[230] Misrepresentations and omissions made about surveillance advertising practices—including the engagement-maximizing design practices adopted for the purpose of increasing minors' time online —plainly involve the health and safety of minors. Commenters CDD and Fairplay explained the health- and safety-related impacts of engagement maximization at length in the Petition for Rulemaking they filed last week on engagement maximization techniques, which is attached in its entirety to this Comment.[231]

As demonstrated above, surveillance advertising meets the FTC's criteria for a deceptive practice. We therefore urge the Commission to promulgate a rule that prohibits targeted marketing to children and teenagers. A proposed rule is included in Appendix A.

IV. **The FTC has the necessary legal authority to make rules protecting children and teens from harmful online practices related to commercial surveillance.**

Under Section 5 of the FTC Act and Section 18 of Magnuson-Moss Warranty–Federal Trade Commission Improvement Act, the Commission has the enforcement and rulemaking authority to prohibit unfair and/or deceptive trade practices that are prevalent and cause injury to consumers.[232] Its authority is not limited by 15 U.S.C. § 57a(h) nor the Children's Online Privacy Protection Act.

First, the Commission's authority to protect minors from unfair commercial surveillance practices is not foreclosed by 15 U.S.C. § 57a(h), which says:

> The Commission shall not have any authority to promulgate any rule in the children's advertising proceeding pending on May 28, 1980, or in any substantially similar proceeding on the basis of a determination by the Commission that such advertising constitutes an unfair act or practice in or affecting commerce.

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[230] *Id.*

[231] Center for Digital Democracy, Fairplay et al., *supra* note 92.

[232] 15 U.S.C. § 45(a)(1); 15 U.S.C. § 57a.

This proceeding was not pending in 1980; thus the only relevant question is whether the current proceeding is "substantially similar" to the 1980 children's advertising proceeding. During that proceeding, the Commission proposed a rule that would do three things:

a) ban televised advertising for any product directed to, or seen by, audiences composed of a significant proportion of children too young to understand the selling purpose of or otherwise comprehend or evaluate the advertising;

b) ban televised advertising for sugared food products directed to, or seen by, audiences composed of a significant proportion of older children, the consumption of which products poses the most serious dental health risks; and

c) when televised advertising is for sugared food products not included in Paragraph (b), and is directed to, or seen by, audiences composed of a significant proportion of older children, require it to be balanced by nutritional and/or health disclosures funded by advertisers.[233]

This proceeding has a different subject-matter and scope than the 1980 proceeding. The 1980 proceeding was concerned with televised advertising that did not rely on individualized consumer data collection and was targeted based on context alone. By contrast, the questions in the Commission's Notice and Commenters' recommendations concern constantly evolving surveillance advertising practices that—as outlined in detail above—differ dramatically from those deployed to serve television advertisements in 1980, are deployed primarily in a digital environment, and typically rely on extensive consumer data collection. In addition, whereas the 1980 proposed rules would have completely banned advertising to children below a certain age, the rules and standards the Commenters are asking the Commission to adopt do not propose a complete ban on advertising to children on online platforms.

Second, the Commission's authority to make rules in this proceeding regarding unfair/and or deceptive trade practices that impact minors is also not limited by the Children's Online Privacy Protection Act. Although COPPA establishes certain privacy-invasive practices categorically as unfair/deceptive practices, it is not intended to be exhaustive of all unfair/deceptive practices that concern children or even children's privacy. Nothing in COPPA suggests that it limits the FTC's authority to protect children under 13 years old from unfair and deceptive trade practices that are beyond the Act's scope. On the contrary, when Congress passed COPPA, it explicitly declined to curtail the FTC's general authority regarding unfair and deceptive trade practices under Section 5 and Section 18. Section 6(e) of COPPA states, "nothing contained in the Act shall be construed to limit the authority of the Commission *under any other*

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[233] Children's Advertising: Proposed Trade Regulation Rulemaking and Public Hearing, 43 FR 17,967, 17,969 (proposed Apr. 27, 1978).

provisions of law.[234] Section 5 of the FTC Act is a provision of law other than COPPA. Thus, COPPA does not limit the FTC's general rulemaking and enforcement authority as to minors.

Commenters also urge the FTC to promulgate rules to protect teens from unfair/deceptive surveillance advertising practices, and the protection of teens plainly falls entirely beyond the scope of COPPA. Indeed, the FTC has already utilized its enforcement authority to protect consumer privacy in areas important to teens—such as social networking—and has previously said that adolescents are sensitive users requiring specific online protections.[235]

The Commission has the authority to prohibit trade practices that are unfair and/or deceptive to children and teenagers, and Commenters urge the Commission to use that authority to protect minors online.

V.   <u>Conclusion</u>

The complexity of the surveillance advertising apparatus and its omnipresence in Americans' lives render it unavoidable for children and teens. The data collection practices that undergird surveillance advertising, the design choices used to increase targeted advertising's efficacy and the resulting ads themselves are harmful to young people. These harms to children and teens have been well-documented, and include privacy harms, discrimination, harms to mental health and body image and fostering problematic internet use. Despite this, commercial actors are not held accountable for these harms to minors. Commenters ask the Commission to use its authority to curb the deleterious impact of surveillance advertising on minors. Given the prevalence of the surveillance advertising business model and the attendant harms caused to children and teens, Commenters urge the Commission to promulgate a rule prohibiting targeted marketing to minors, as well as rules to limit commercial surveillance of minors.

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[234] Children's Online Privacy Protection Act of 1998, Pub. L. No. 105-277, § 1306(e), 112 Stat. 2681–728, 2681–735 (1998).

[235] *See FTC Testifies on Protecting Teen Privacy,* Federal Trade Commission (July 15, 2010), https://www.ftc.gov/news-events/news/press-releases/2010/07/ftc-testifies-protecting-teen-privacy; *FTC Staff Issues Privacy Report, Offers Framework for Consumers, Businesses, and Policymakers, Federal Trade Commission*, Federal Trade Commission (Dec. 1, 2010), https://www.ftc.gov/news-events/news/press-releases/2010/12/ftc-staff-issues-privacy-report-offers-framework-consumers-businesses-policymakers (Chairman Lebowitz stating that the FTC "will take action against companies that cross the line with consumer data and violate consumers' privacy – especially when children and teens are involved.").

Respectfully Submitted,

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Appendix A: Proposed Rule: Prohibition on Targeted Advertising and Marketing to children under 18 [Questions 19, 21]

As advocates demonstrate in the body of this comment, surveillance advertising is unfair and deceptive when targeted to minors. Commenters therefore urge the Commission to promulgate the following rule:

Rule:
A covered entity, or an entity acting on its behalf, shall not collect, use, retain, transfer or otherwise process covered data for the purpose of algorithmically or otherwise automatically targeting individuals or segments of individuals as recipients of online advertising and marketing if the covered entity has knowledge that the individual is a covered minor.

Definitions:
"Advertising and marketing" shall mean
a communication, technique, or practice employed by a business or an entity acting on the business' behalf in any medium to bring products, services, opinions, companies or brands, or causes to be noticed for the purpose of persuading the recipient to respond in a manner intended to commercially benefit the advertiser.

"Covered entity" shall mean an Internet information services provider and includes any website, app, or digital property on which any person or organization does business, disseminates information, or interacts with other users.

"Covered minor" shall mean
an individual under the age of 18.

"Covered data" shall include any:
a. information that is personally identifying or otherwise linked to an individual or a device;
b. information that is reasonably   linkable to an individual or a device; or
c. information that is delinked from individual users but nonetheless
that can be used on its own or in combination with other publicly or privately available information to target individuals or groups of individuals based on the user's information for the purpose of advertising and marketing.

"Knowledge'' shall mean
(i) with respect to a covered entity that is a covered high-impact social media company, the entity knew or should have known the individual was a covered minor;
(ii) with respect to a covered entity or service provider that is a large data holder, and otherwise is not a covered high-impact social media company, that the covered entity knew or acted in willful disregard of the fact that the individual was a covered minor; and
(iii) with respect to a covered entity or service provider that does not meet the requirements of clause (i) or (ii), actual knowledge.

"Covered high-impact social media company" shall mean a

a covered entity that provides any internet-accessible platform where—

(i) such covered entity generates $3,000,000,000 or more in annual revenue;

(ii) such platform has 300,000,000 or more monthly active users for not fewer than 3 of the preceding 12 months on the online product or service of such covered entity; and

(iii) such a platform constitutes an online product or service that is primarily used by users to access or share user-generated content.

"Large data holder" shall mean

a covered entity or service provider that, in the most recent calendar year—

(i) had annual gross revenues of $250,000,000 or more; and

(ii) collected, processed, or transferred—

    (I) the covered data of more than 5,000,000 individuals or devices that identify or are linked or reasonably linkable to 1 or more individuals, excluding covered data collected and processed solely for the purpose of initiating, rendering, billing for, finalizing, completing, or otherwise collecting payment for a requested product or service; and

    (II) the sensitive covered data of more than 200,000 individuals or devices that identify or are linked or reasonably linkable to 1 or more individuals.

Exclusions.—The term ''large data holder'' does not include any instance in which the covered entity or service provider would qualify as a large data holder solely on the basis of collecting or processing—

(i) personal email addresses;

(ii) personal telephone numbers; or

(iii) log-in information of an individual or device to allow the individual or device to log in to an account administered by the covered entity or service provider.

"Process" shall mean

collect, use, retain, or transfer.

Appendix B: Proposed Standards To Advance Fair and Just Data Practices in the Best Interest of Children and Teens [Questions 18-22]

In addition to a prohibition on targeted advertising and marketing to children under 18, further safeguards for children and their data outside of the targeted advertising and marketing context are needed. While a prohibition on targeted advertising and marketing practices will greatly reduce the processing of children's personal data, data for other purposes may still be processed and can cause harm. We propose three standards to limit these harms. They constitute a minimum necessary but not exhaustive list of general principles that should be incorporated into FTC rulemaking addressing unfair and deceptive data practices of children under 18. Our standards here should be considered consistent with the comments filed by the Electronic Privacy Information Center whose comments we support.

These proposed standards overlap with and strengthen requirements set out by the Children's Online Privacy Protection Act. As discussed in Section IV, the FTC has the authority to promulgate rules more restrictive than COPPA to protect children against evolving business practices.

Our proposed standards are three-fold: the first standard ensures that only the minimum amount of data of children and teens is collected, used, or transferred by covered entities. This would greatly reduce harm and reduce the burden on parents/guardians and individuals to manage the onslaught of data processing requests by covered entities and thus establish safeguards that can work in practice. The second standard ensures that covered minors' privacy and civil rights are affirmatively safeguarded in a fair, non-deceptive and just way to advance the best interests of children. The third standard imposes a duty of care on covered entities for any data that covered entities process, to ensure that covered entities always consider the best interest of children when collecting, using, or transferring their data. All three standards would apply also to children under 13 and their parents/guardians in addition to COPPA.

These standards utilize the definitions in Appendix A, as well as these additional definitions:

Covered junior minor shall mean
an individual under 13.

Covered senior minor shall mean
an individual from 13 to under 18.

1. **Data Minimization of Covered Minor Data Standard**
   a. Collect, Use, Retain, or Transfer Covered Data Only when Strictly Necessary
      i. If a covered entity has knowledge that an individual or online user is a covered minor, a covered entity may only process covered data that is strictly necessary to achieve a specific primary purpose for the covered minor to interact with the business product or service, or strictly necessary to achieve certain essential purposes.

1. Essential purposes include: the purposes for fulfillment; fraud prevention; security safeguards, product improvements for the requested product or service only; analytics for functioning of the product/service; for age assurance, but only if data processing for this purpose is proportionate to the risks and data practices of the covered entity
   a. Service providers who process data on behalf of a client should segment the data from other clients, and should be prohibited from engaging in processing this data for their own purposes.
   b. Essential purpose processing should, where possible, be limited to data already collected and retained for a primary purpose in order to minimize new risk of secondary exposure or misuse.
2. Non-essential and non-primary purposes include: any processing of individual user data for the purpose of advertising or marketing and/or any processing for personalized design features to maximize user engagement.

   b. Obtain Consent for High-Risk Practices
      i. A covered entity may not engage in certain high-risk practices without an affirmative express consent from the parent/guardian of a covered junior minor, consistent with (COPPA provisions[236]), or directly from a covered senior minor. These practices include:
         1. To transfer or direct to transfer covered data of a covered minor to a third party.
         2. To process covered minor data for sensitive purposes, such as use of inferences drawn from precise geo-location data.

2. **Covered Minors' Rights Standard**
   a. Civil Rights
      i. A covered entity must not use covered data in a way that discriminates against covered minors on the basis of protected characteristics (such as race, color, religion, national origin, sex, or disability), except for the purpose of self-testing to prevent or mitigate unlawful discrimination or to diversify a participant or customer pool.
      ii. Covered high-impact social media companies or large data holders must
         1. conduct a civil rights algorithmic impact assessments before any new online services, products, or features are offered to the public, and on an ongoing basis;
         2. document any material residual risk to covered minors; and

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[236] Children's Online Privacy Protection Act, COPPA, 105th Congress, S.2326 (1998).

3. mitigate or eliminate that risk to a reasonably acceptable level before making the service, product, or feature available to the public.

b. Right to Access, Correction, Deletion, Portability
   i. Covered Minors have the right to access, correct, or delete covered data pertaining to them. They also have a right to the portability of data that is
      1. submitted to the online service or product by that user;
      2. publicly available through the online service or product; and
      3. contains or displays the covered minor's personal information. Covered Senior Minors will exercise that right themselves.
   ii. Personal data of covered minors should be disposed of in accordance with a retention schedule that shall require the deletion of covered data when such data is required to be deleted by law or is no longer strictly necessary for the purpose for which the data was processed, unless a covered senior minor or the parent/guardian of a covered junior minor has provided affirmative express consent to such retention.

c. Right to Erasure
   i. The covered entity must implement a mechanism that permits a covered senior minor or parent/guardian of a covered junior minor of an online service or product to erase or otherwise eliminate content or information that is—
      1. submitted to the online service or product by that user;
      2. publicly available through the online service or product; and
      3. contains or displays the covered minor's personal information

3. **Duty of Care Standard**
   a. The covered entity must consider the best interest of covered minors when processing data or designing, developing, and providing that online service, product, or feature. Among other things, all covered entities must:
      i. estimate the age of users with a reasonable level of certainty appropriate to the risks that arise from the data management practices of the business or apply the privacy protections afforded to covered minors to all consumers;
      ii. prioritize the privacy, safety, and well-being of covered minors over commercial interests;
      iii. configure default privacy settings that achieve high levels of privacy;
      iv. implement high levels of transparency such as age-appropriate privacy notices;
      v. provide easily accessible tools or controls for covered senior minors and parents/guardians of covered junior minors that advance the best interest of covered minors, and provide conspicuous notice to covered minors when such parental tools or controls are in use;

vi. not profile covered minors unless it is necessary to provide the online service or feature and the business can demonstrate a compelling reason that the profiling is in the best interest of the covered minor;

b. Before making an online service, product, or feature available to the public, and on an ongoing basis, covered high-impact social media companies and large data holders must:
   i. conduct a Data Protection Impact Assessments (DPIA);
   ii. document any material residual risk to covered minors; and
   iii. mitigate or eliminate the identified risks

Appendix C: Contemporary Marketing Definition

Commenters use "surveillance advertising," "surveillance marketing," and "targeted marketing and advertising" interchangeably generally referring to Surveillance Marketing which we define in the following way:

Definition of Surveillance Marketing:
Marketing is a communication, technique, or practice employed by a business or an entity acting on the business' behalf in any medium to bring products, services, opinions, companies, or brands, or causes to be noticed for the purpose of persuading the recipient to respond in a manner intended to commercially benefit the marketer. Contemporary digital **surveillance marketing** is comprised of multiple processes and integrated elements that involve the collection, use, retention, or transfer of data about individuals or groups online. This includes

- previous and real-time actions and behaviors by an individual, including behavioral changes and a "conversion" related response within and across channels, including streaming, social, mobile, and ecommerce applications;
- the formulation of machine learning driven individual data profiles used to assess and target consumers, including through the dominant programmatic real-time bidding (RTB) (real-time buying and selling of digital advertising) processes and delivery of marketing messages;
- the cross-device gathering of information used for analytics, measurements and attribution;
- "in-flight" (real-time) interventions and ongoing/post marketing campaign activities;
- capture of data used for "identity management" processing, including the development of data-driven targeting profiles or models, used for subsequent targeting of the consumer and similar ("lookalike") individuals online.

Underlying this data processing are extensive integrations among data partners, content engagement specialists, platforms, marketing clouds and other affiliations that provide foundational support for surveillance data processes today.

The data formulary, glossary and "Open RTB" specifications developed by the Interactive Advertising Bureau, as well as the materials prepared by the Advertising Research Foundation (ARF) and the Coalition for Innovative Media Measurement (CIMM), illustrate these dimensions of data-driven surveillance marketing.[237] The architecture to capture and use consumer data for targeting created for Google, Meta, TikTok developers and others also reflect the range of processes that regularly occur.[238]

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[237] *Glossary of terminology*, IAB (2020), https://www.iab.com/insights/glossary-of-terminology/#index-13 (last visited Nov 18, 2022); *Ad Product Taxonomy*, IAB (2022), https://iabtechlab.com/standards/ad-product-taxonomy/; *CIMM and the ARF Release Lexicon 4.0: A Common Language for Media Measurement*, Coalition for Innovative Media Measurement at the ARF (2021), https://cimm-us.org/ua_resource/cimm-and-the-arf-release-lexicon-4-0-a-common-language-for-media-measurement/; *OpenRTB*, IAB (2022), https://www.iab.com/guidelines/openrtb/ (last visited Nov 18, 2022).

[238] *Glossary | Ads Data Hub*, Google Developers (2022), https://developers.google.com/ads-data-hub/resources/glossary (last visited Nov 18, 2022); *Audiences - Marketing API - Documentation*, Meta for

Each element that comprises contemporary marketing, is data-driven. For example, ARF/CIMM revised its Lexicon to reflect "the expansion of the industry since 2016". Each of the categories or marketing channels listed is shaped and activated by a wide range of data applications: "TV & Cross-Platform Video Measurement (Converged TV); CTV and OTT, Streaming Apps and Platforms; Interactive TV (iTV); T-Commerce or Shoppable TV; Advanced and Addressable TV; Return Path Data and Set-Top Boxes, Cable & Satellite TV distribution (MVPDs) and vMPVDs; Smart TVs and ACR; Programmatic Buying & Selling; Dynamic Ad Insertion; Digital Ad Tech & E-Commerce; Virtual Reality; NeuroScience; Internet of Things; Artificial Intelligence and Machine Learning; Social Media; Walled Gardens; Fraud and Brand Safety;

Developers, https://developers.facebook.com/docs/marketing-api/audiences/ (last visited Nov 18, 2022); *Documentation | TikTok API for Business*, TikTok (2022), https://ads.tiktok.com/marketing_api/docs?id=1740029165513730 (last visited Nov 18, 2022).

Privacy & Data Security".[239] In addition, there are other key modalities involving data collection, including influencers and social media monitoring.[240]

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[239] *CIMM and the ARF Release Lexicon 4.0: A Common Language for Media Measurement*, Coalition for Innovative Media Measurement at the ARF (2021), https://cimm-us.org/ua_resource/cimm-and-the-arf-release-lexicon-4-0-a-common-language-for-media-measurement/; *Cross-Device Targeting & Tracking | Cross-Device Attribution Marketing,* The Trade Desk, https://www.thetradedesk.com/us/our-platform/dsp-demand-side-platform/cross-device-targeting (last visited Nov 18, 2022); Justin Evans, *Data is the Difference: How App Marketers can win at streaming,* Ad Age (2022), https://adage.com/article/media/data-difference-how-app-marketers-can-win-streaming/2407451 (last visited Nov 18, 2022); *OneView by Roku*, Roku (2022), https://advertising.roku.com/advertiser-solutions/oneview (last visited Nov 18, 2022); *QR Codes For TV: Insights From An Insider*, MediaPost (2022), https://www.mediapost.com/publications/article/371370/qr-codes-for-tv-insights-from-an-insider.html (last visited Nov 18, 2022); Matt Miller, *Differences between vMVPD and MVPD viewers*, Amazon Ads (2022), https://advertising.amazon.com/blog/vmvpd-and-mvpd-viewers (last visited Nov 18, 2022); Alan Wolk, *How ACR Data Helps Samsung Clients Get A Better Grasp Of Their Target Audience*, TVREV (2022), https://www.tvrev.com/news/how-samsung-helps-clients-get-a-better-grasp-of-their-target-audience (last visited Nov 18, 2022); Kat Van Fossen, *U.S. Report Programmatic In-Housing: Current Environment and the Impact of Regulation* (2020), https://www.iab.com/wp-content/uploads/2020/07/IAB_2020ProgrammaticInHousing_US_2020-08.pdf; *Learn about Dynamic Ad Insertion (DAI),* Google Ad Manager Help, (2022), https://support.google.com/admanager/answer/6147120?hl=en (last visited Nov 18, 2022); *AdTech Landscape 2022*, Playwire (2022), https://www.playwire.com/blog/adtech-landscape-2021 (last visited Nov 18, 2022); *Home*, Neuro-Insight, https://www.neuro-insight.com/ (last visited Nov 18, 2022); Tatiana Tilearcio, *Wearable Technology: New Source of Data for Marketers?*, Synthesio (2015), https://www.synthesio.com/blog/wearable-technology-new-source-of-data-for-marketers/ (last visited Nov 18, 2022); Jerry Dischler, *Putting machine learning into the hands of every advertiser*, Google (2018), https://blog.google/technology/ads/machine-learning-hands-advertisers/ (last visited Nov 18, 2022); Daniel Konstantinovic, *TikTok tries to help usher in an age of machine learning advertising - Insider Intelligence Trends, Forecasts & Statistics*, Insider Intelligence (2022), https://www.insiderintelligence.com/content/tiktok-tries-usher-age-of-machine-learning-advertising (last visited Nov 18, 2022); Caridi Daniel, *Opening the closed web: Why walled gardens are a marketer's best bet | Sponsored Content - Insider Intelligence Trends, Forecasts & Statistics*, Insider Intelligence (2022), https://www.insiderintelligence.com/content/opening-closed-web-walled-gardens-marketers-best-bet (last visited Nov 18, 2022); *AR Buyer's Guide*, IAB (2021), https://www.iab.com/wp-content/uploads/2021/03/IAB_AR-Buyers-Guide_2021-03.pdf; *GARM Framework Makes Safety and Suitability Front-and-Center Topic For Brands*, Brand Safety Institute (2021), https://www.brandsafetyinstitute.com/blog/openslate-adopts-garm-suitability-framework (last visited Nov 18, 2022); *Demystifying Data Cleanrooms: A Marketer's Handbook*, The ARF (2022), https://thearf.org/category/ua_resource/demystifying-data-cleanrooms-a-marketers-handbook-2/ (last visited Nov 18, 2022).
[240] *Influencer Marketing Goes Programmatic; The Times Bans Social Pixels*, Adexchanger (2019), https://www.adexchanger.com/ad-exchange-news/influencer-marketing-goes-programmatic-the-times-bans-social-pixels/ (last visited Nov 18, 2022); Christina Newberry, *What is Social Listening, Why it Matters, and 10 Tools to Make it Easier*, Social Media Marketing & Management Dashboard (2021), https://blog.hootsuite.com/social-listening-business/ (last visited Nov 18, 2022).

Public health and online marketing experts focused on youth published a report that illustrates how these and other marketing elements unfairly target and undermine their well-being.[241]

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[241] *Recommendations for Responsible Food Marketing to Children*, Healthy Eating Research (2015), http://healthyeatingresearch.org/wp-content/uploads/2015/01/HER_Food-Marketing-Recomm_1-2015.pdf.

Appendix D: Petition for Rulemaking to Prohibit the Use of Children of Design Features that Maximize for Engagement [Question 17]

On November 17, 2022, Fairplay, the Center for Digital Democracy and nineteen other children's and consumer advocacy organizations filed a Petition for Rulemaking with the FTC, urging the Commission to prohibit the use of design features that maximize for engagement on children. Because that petition is so responsive to Question 17 in the Commission's Notice, we are including it in its entirety here.

Before the
Federal Trade Commission
Washington, DC 20580

In the Matter of

Petition for Rulemaking to Prohibit the
Use on Children of Design Features that
Maximize for Engagement

Center for Digital Democracy
Fairplay

Accountable Tech
American Academy of Pediatrics
Becca Schmill Foundation, Inc.
Berkeley Media Studies Group
C. Everett Koop Institute at Dartmouth
Center for Humane Technology
Children and Screens: Institute of Digital Media and Child Development
Eating Disorders Coalition
Electronic Privacy Information Center (EPIC)
LookUp.live
Lynn's Warriors
Network for Public Education
Parent Coalition for Student Privacy
ParentsTogether
Protect Young Eyes
Public Citizen
Together for Girls
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via electronic filing
November 17, 2022

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Summary and Background

In this Petition for Rulemaking, the Center for Digital Democracy, Fairplay, Accountable Tech, American Academy of Pediatrics, Becca Schmill Foundation, Inc., Berkeley Media Studies Group, C. Everett Koop Institute at Dartmouth, Center for Humane Technology, Children and Screens: Institute of Digital Media and Child Development, Eating Disorders Coalition, Electronic Privacy Information Center (EPIC), LookUp.live, Lynn's Warriors, Network for Public Education, Parent Coalition for Student Privacy, ParentsTogether, Protect Young Eyes, Public Citizen, Together for Girls, UConn Rudd Center for Food Policy and Health, and U.S. Public Interest Research Group (collectively, "Petitioners") call upon the Federal Trade Commission (FTC) to promulgate a rule prohibiting the use of certain types of engagement-optimizing design practices on individuals under the age of 18 ("minors"). **When minors go online, they are bombarded by widespread design features that have been carefully crafted and refined for the purpose of maximizing the time users spend online and activities users engage in.** The FTC can and must establish rules of the road to clarify when these design practices cross the line into unlawful unfairness, thus protecting vulnerable users from unfair harms and restoring minors' and families' trust in the internet as a tool for minors to grow and prosper.

The internet holds tremendous potential to benefit minors and their families. Minors routinely use apps, websites, and other online services to attend and participate in school, complete their homework, research and learn about the world, explore their emerging identities, communicate with friends and loved ones, learn about and engage with the political process, develop professional skills for their eventual careers, and be entertained. Particularly in the years of the pandemic, many minors have relied heavily on online services to an unprecedented extent, spending more time online for school, social interactions, and entertainment. Minors should be able to engage in these valuable online activities without being harmed by the very providers of the services they use.

Unfortunately, minors and their families cannot be assured of the safety—or even the neutrality—of the online services they use. The goals of the apps, games, and services used by minors often are at odds with minors' best interests. The vast majority of apps, games, and services that are popular among minors generate revenue primarily via advertising, and many employ sophisticated techniques to cultivate lucrative long-

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term relationships between minors and their brands. As a result, developers have an interest in getting and keeping users on their products as much as possible. This conflicts with users' interest in an online experience that contributes to, rather than detracts from, their overall wellbeing.

To accomplish the goal of maximizing opportunities to generate ad revenue, apps, games, and services have developed—and are constantly tweaking, testing, and refining—sophisticated design features that maximize their users' time and activities online. We discuss numerous examples (such as autoplay, endless scroll, and strategically timed advertisements) of these widespread practices in this Petition. Such features serve the interests of platforms and advertisers, not children.

Design features like these often transform minors' online experience into a harmful one. As this Petition explains, design features that maximize time and activity online harm minors emotionally, developmentally, and physically. Minors themselves complain that they have difficulty extricating themselves from services designed to keep them engaged, and lament the social pressure they feel to produce and interact with content. Online engagement driven by these design features displaces sleep and physical activity, harming minors' health, growth, and academic performance. It can lead to what is known as "problematic internet use," which is associated with a range of additional secondary harms. It exposes minors to potential predators and online bullies, as well as to age-inappropriate content. It harms minors' self-esteem and appears to aggravate risks of disordered eating and suicidality. And it encourages the disclosure of, and relies on the processing of, massive amounts of privacy-invasive user data.

A number of stories have emerged in recent years illustrating just how harmful these design practices can be. For example, the personalization of content (to keep users engaged), along with an autoplay function (to keep users continuously watching videos), led in 2019 to a six-year-old being shown an animated video encouraging suicide.[2] At their most extreme, these design features can be so appealing that they cause minors to form difficult-to-break habits that may lead to severe familial conflict, depression and anxiety, or even suicide. For example, last year, the family of Selena Rodriguez, a girl who died by suicide at the young age of 11, sued the makers of Facebook, Instagram, and Snapchat in a product liability complaint. The family alleged

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[2] Rebecca Heilweil, *YouTube's Kids App Has a Rabbit Hole Problem*, Vox (May 12, 2021), https://www.vox.com/recode/22412232/youtube-kids-autoplay.

that design features of these products over two years led to a severe decline in Selena's mental health, which culminated in her taking her own life.[3]

Despite mounting evidence that design features maximizing minors' online time and activities are implicated in concrete and serious harms to minors, the design practices outlined in this Petition continue to bombard minors online. Minors cannot go online without encountering countless engagement-optimizing design practices. We focus in particular on three categories of these practices, defined and documented in detail in this Petition:

1. **Low-friction variable rewards design features.** These design features encourage compulsive behavior by rewarding minors unpredictably for merely scrolling, tapping, and/or logging onto a website or service in order to maximize a minor's time on the service.
2. **Design features that manipulate navigation.** These design features make it difficult for minors to freely navigate or cease use of a website or service.
3. **Social manipulation design features.** These design features leverage a minor's desire for social relationships to encourage greater time spent and/or activities performed on a website or service.

These harmful practices are widespread across numerous apps, games, and other services used by minors.

These particular categories of design practices are more than merely harmful to minors—they are unfair, in violation of Section 5 of the FTC Act. Minors have a variety of social, emotional, and psychological vulnerabilities relative to adults. This makes minors both particularly susceptible to, and particularly ill-equipped to avoid, the substantial harms caused by these practices. Nor can parents and guardians reasonably protect against these harms. In the modern era, not even the most attentive parents and guardians can possibly supervise their children's every online moment and activity. Even if they could, confusing or misleading defaults and setting choices often frustrate parents' and guardians' best attempts to implement protective measures. Moreover, manipulative features such as navigation constraints are effectively invisible, since no

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[3] Adela Suliman, *Mother of 11-Year-Old Who Died by Suicide Sues Social Media Firms Meta and Snap*, Wash. Post (Jan. 22, 2022), https://www.washingtonpost.com/nation/2022/01/22/selena-rodriguez-suicide-meta-snap-lawsuit/.

alternative options are provided to users to choose from. This is why parents, public health professionals, and, indeed, the broader general public are all imploring policymakers to take action.

Market forces will not solve the problem; rather, market incentives create a "race to the bottom" whereby these features are proliferated by platforms competing with each other for market share and brand loyalty. The harmful externalities are passed onto kids, families, and society while companies and shareholders reap the rewards. A broadly applicable policy must be established to rein in these widespread unfair design practices that saturate the minor's online experience.

Fortunately, the FTC is well-positioned to provide the necessary solution. The FTC Act vests the agency with ample authority to adopt rules prohibiting prevalent conduct that is unfair or deceptive. These conditions are plainly met here. Therefore, we call on the FTC to promulgate regulations to prohibit the use of design practices that maximize online engagement on minors.

In accordance with the FTC's rules on petitions for rulemaking, this Petition sets forth below 1) a full statement of the factual and legal basis for the requested rulemaking, and 2) a full statement of the requested action, including the text and substance of the proposed rule.

Factual and Legal Basis for Requested Rulemaking

Under the FTC Act, the FTC has the authority to prescribe rules that "define with specificity . . . unfair or deceptive acts or practices in or affecting commerce," which "may include requirements prescribed for the purpose of preventing such acts or practices,"[4] where it has reason to believe that the unfair or deceptive acts or practices are prevalent.[5] Petitioners urge the FTC to use this authority to promulgate a rule, the text of which is suggested below, prohibiting the use on minors of three particular types of design features that maximize users' time and activities online. As Petitioners explain below, these categories of design features are unfair when used on minors, yet are prevalent in online services and sites used widely by minors.

Petitioners begin below by explaining how, in general, maximizing minors' time and activities online causes substantial injury within the meaning of the FTC's

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[4] 15 U.S.C. § 57a(a)(1)(B).
[5] 15 U.S.C. § 57a(b)(3).

unfairness doctrine. As millions of exasperated parents are well aware, when minors are manipulated into spending more time and engaging in more activities online, this leads to a variety of concrete and serious psychological, emotional, and physical harms.

Petitioners next describe three categories of design features that are effective at maximizing users' time and activities online and are prevalent in apps, games, and other online services used by minors. For each category, Petitioners offer a suggested definition of the category, an explanation of how features in the category function to maximize users' time and/or activities online, and several examples illustrating the prevalence of the category. In addition, Petitioners explain how several of these categories of design features cause additional injuries to minors—injuries above and beyond those associated with minors' overall volume of time and activities online.

Finally, Petitioners provide additional analysis establishing the categorical unfairness of these types of design features. Not only are these design features the cause of substantial injury to minors, but neither minors nor their parents can reasonably avoid injury caused by these practices, and the harms caused by these design features outweigh any arguable countervailing benefits to minors or competition.

I. Design practices that maximize users' time and activities online cause substantial injury to minors.

In determining whether a practice is unfair, the FTC first looks to see whether the practice causes substantial injury.[6] Under FTC policy, "[u]nwarranted health and safety risks may . . . support a finding of unfairness."[7] Indeed, design features that maximize minors' time and activities online are deeply harmful to minors' health and safety. As the Surgeon General has observed, "[b]usiness models are often built around maximizing user engagement as opposed to safeguarding users' health and ensuring that users engage with one another in safe and healthy ways . . . . This translates to technology companies focusing on maximizing time spent, not time well spent." [8] By maximizing time and activities online, the design features at issue in this Petition harm minors' mental health, foster problematic internet use by minors, damage minors'

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[6] Federal Trade Commission, Policy Statement on Unfairness (1980), https://www.ftc.gov/legal-library/browse/ftc-policy-statement-unfairness.

[7] *Id.*

[8] Protecting Youth Mental Health: The U.S. Surgeon General's Advisory 25 (2021), https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf.

physical health, exacerbate minors' privacy harms, increase minors' risk of contact with dangerous or harmful people, and increase minors' exposure to age-inappropriate and otherwise harmful content.

A.   Harm to overall mental health

Maximizing minors' time and activities online is linked with worse psychological wellbeing in minors in concrete and serious ways that cannot be ignored in the context of the current youth mental health crisis.

Heavy users of digital media are more likely to be unhappy, to be depressed, or to have attempted suicide.[9] According to researchers reporting on the results of two nationally representative surveys of U.S. adolescents in grades 8 through 12, "the results show a clear pattern linking screen activities with higher levels of depressive symptoms/suicide-related outcomes and nonscreen activities with lower levels."[10] The researchers reported that suicide-related outcomes became elevated after two hours or more a day of electronic device use.[11] Among teens who used electronic devices five or more hours a day, a staggering 48% exhibited at least one suicide risk factor.[12] Of particular concern, a large and growing body of research indicates a strong link between time spent on social media—some of the services most known for using engagement-maximizing techniques—and serious mental health challenges.[13] Longer

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[9] Jean M. Twenge & W. Keith Campbell, *Media Use Is Linked to Lower Psychological Well-Being: Evidence from Three Datasets*, 90 Psychol. Q., 311 (2019).

[10] Jean M. Twenge et al., *Increases in Depressive Symptoms, Suicide-Related Outcomes, and Suicide Rates Among U.S. Adolescents After 2010 and Links to Increased New Media Screen Time*, 6 Clinical Psychol. Sci. 3, 9 (2018). *See also generally* Jane Harness et al., *Youth Insight About Social Media Effects on Well/Ill-Being and Self-Modulating Efforts*, 71 J. Adolescent Health, 324-333 (Sept. 1, 2022); Amy Orben et al., *Windows of Developmental Sensitivity to Social Media*, 13 Nature Comm., 1649 (2022).

[11] *Id.*

[12] *Id.*

[13] *See, e.g.*, K.E. Riehm et al., *Associations Between Time Spent Using Social Media and Internalizing and Externalizing Problems Among US Youth*, 76 JAMA Psychiatry, 1266 (2019), https://doi.org/10.1001/jamapsychiatry.2019.2325; N. McCrae et al., *Social Media and Depressive Symptoms in Childhood and Adolescence: A Systematic Review*, 2 Adolescent Res. Rev., 315 (2017), https://doi.org/10.1007/s40894-017-0053-4; H. Allcott et al., *The Welfare Effects of Social Media*, 110 Econ. Rev. Am. 629 (2020), https://www.aeaweb.org/articles?id= 10.1257/aer.20190658.

and more frequent social media use is associated with depression,[14] anxiety,[15] and suicide risk factors.[16]

Even if some of these documented associations are explained by children's underlying emotional challenges, the design features that are the subject of this Petition are likely to have differential negative effects on these youth. For example, children with more negative emotionality may seek endless scrolling as a means of dissociating from emotional distress,[17] yet may be recommended more negative content based on their previous behavior.[18] Minors with weaker impulse control may seek out video games as a satisfying activity, but may be more susceptible to the manipulative design patterns common in popular games, such as interaction-by-design (asking users to return to the game, even overnight, to obtain rewards), leading to less time sleeping.

B.   Harm to body image

Design features that maximize time spent on social media can also lead to heightened exposure to negative body image–related content, which increases minors' susceptibility to poor body image and, consequently, disordered eating. A study of data from 7th and 8th graders published in 2019 in the *International Journal of Eating Disorders* "suggest[ed] that [social media], particularly platforms with a strong focus on image posting and viewing, is associated with elevated [disordered eating] cognitions and behaviors in young adolescents."[19] In another study, researchers found a positive

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[14] Twenge & Campbell, *supra* note 9, at 312.

[15] Royal Society for Public Health, #*StatusOfMind: Social Media and Young People's Mental Health and Wellbeing* 8 (May 2017).

[16] Twenge & Campbell, *supra* note 9.

[17] Amanda Baughan et al., *"I Don't Even Remember What I Read": How Design Influences Dissociation on Social Media*, CHI Conference on Human Factors in Computing Systems, 1-13 (2022), https://dl.acm.org/doi/pdf/10.1145/3491102.3501899.

[18] Kait Sanchez, *Go Watch this WSJ investigation of TikTok's Algorithm,* The Verge, (July 21, 2021, 2:28 PM), https://www.theverge.com/2021/7/21/22587113/tiktok-algorithm-wsj-investigation-rabbit-hole.

[19] Simon M. Wilksch et al., *The Relationship Between Social Media Use and Disordered Eating in Young Adolescents*, 53 Int. J. Eat. Disord. 96, 104 (2020).

correlation between higher Instagram use and orthorexia nervosa diagnoses.[20] Personal stories from sufferers of disordered eating have highlighted the link to social media.[21]

Time spent on social media can harm minors' body image and increase their susceptibility to disordered eating in multiple ways. First, visual social media platforms trigger social comparison as minors compare their appearance to others, including influencers. For example, an exploratory study performed internally at Meta concluded that 66% of teen girls on Instagram experienced negative social comparison, and 52% of those who experienced negative social comparison attributed this experience to viewing images on the platform that were related to beauty.[22] The documents Frances Haugen shared with the *Wall Street Journal* in 2021 revealed that Facebook has been aware at least since 2019 that "[w]e make body image issues worse for one in three teen girls."[23] Haugen has explained how this becomes a vicious feedback cycle for minors: they feel bad about themselves so they go to social media for distraction in order to self-soothe, only to end up seeing the type of posts that led to their anxiety in the first place.[24] Negative self-comparison on social media is experienced by cisgender girls and boys; specifically, boys feel pressure to lose weight and build muscle as a result of the muscular men they see on TikTok, Instagram, and YouTube. Eliot, a 17-year-old, told the *New York Times*, "Girls discuss those pressures more, but it's completely the same for boys."[25]

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[20] Pixie G. Turner & Carmen E. Lefevre, *Instagram Use Is Linked to Increased Symptoms of Orthorexia Nervosa*, 22 Eating Weight Disorders 277, 281 (2017).

[21] *See, e.g.*, Jennifer Neda John, *Instagram Triggered My Eating Disorder*, Slate (Oct. 14, 2021), https://slate.com/technology/2021/10/instagram-social-media-eating-disorder-trigger.html; Clea Skopeliti, *'I Felt My Body Wasn't Good Enough': Teenage Troubles with Instagram*, The Guardian (Sept. 18, 2021), https://www.theguardian.com/society/2021/sep/18/i-felt-my-body-wasnt-good-enough-teenage-troubles-with-instagram.

[22] Spence v. Meta Platforms, N.D. Cal. Case No. 3:22-cv-03294 at 9 (June 6, 2022) (citing Facebook Papers: "Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the US" (March. 2020), at p. 8).

[23] Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show*, W.S.J. (Sept. 14, 2021), https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739.

[24] Allison Slater Tate, *Facebook Whistleblower Frances Haugen Says Parents Make 1 Big Mistake with Social Media*, TODAY (Feb. 7, 2022, 7:06 PM EST), https://www.today.com/parents/teens/facebook-whistleblower-frances-haugen-rcna15256.

[25] Alex Hawgood, *What Is 'Bigorexia'?*, N.Y. Times (Mar. 5, 2022, updated May 17, 2022), https://www.nytimes.com/2022/03/05/style/teen-bodybuilding-bigorexia-tiktok.html.

A slide from an internal presentation at Meta indicates that "beauty"-related content on Instagram drives negative social comparison among teen girls.[26]

Second, platforms use algorithms to deliver content related to topics or themes that the platform believes will maximize a user's time spent on the platform. These recommendation systems create "bubbles" or "rabbit holes" of content around a specific theme and also expose users to increasingly extreme content on a given topic.[27] This has proven true for negative body image and pro-eating disorder content.[28] Indeed, research shows that social media platforms' content selection algorithms have pushed disordered eating and harmful diet techniques to teenage girls.[29] Girls who express an interest in dieting or dissatisfaction with their looks are bombarded with content targeted to these insecurities and often pushed to more extreme content such as pro-anorexia posts and videos. And because platforms know teenage girls disproportionately engage with this type of content,[30] even minor users who do not

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[26] *Teen Girls Body Image and Social Comparison on Instagram–An Exploratory Study in the U.S.*, W.S.J. at 9 (Sept. 29, 2021), https://s.wsj.net/public/resources/documents/teen-girls-body-image-and-social-comparison-on-instagram.pdf.

[27] Fairplay, *Designing for Disorder: Instagram's Pro-eating Disorder Bubble* at 1 (Apr. 2022), https://fairplayforkids.org/wp-content/uploads/2022/04/designing_for_disorder.pdf; *Inside TikTok's Algorithm: A WSJ Video Investigation*, W.S.J. (July 21, 2021), https://www.wsj.com/articles/tiktok-algorithm-video-investigation-11626877477.

[28] Fairplay, *supra* note 27, at 6-7.

[29] *See generally id.*; Jim Waterson & Alex Hern, *Instagram 'Pushes Weight-Loss Messages to Teenagers'*, The Guardian (Jul 19, 2021, 7:01 AM), https://www.theguardian.com/society/2021/jul/20/instagram-pushes-weight-loss-messages-to-teenagers.

[30] *See* Fabrizio Bert et al., *Risks and Threats of Social Media Websites: Twitter and the Proana Movement*, 19 Cyberpsychology, Behav. Soc. Networking (Apr. 2016), https://pubmed.ncbi.nlm.nih.gov/26991868/.

express interest in these topics are often delivered this content. Indeed, when Petitioners registered a TikTok account for a fictitious 14-year-old, Petitioners quickly were fed videos advertising breast enhancement oil and weight loss patches—without having followed any other accounts or having searched for terms related to these topics.[31]
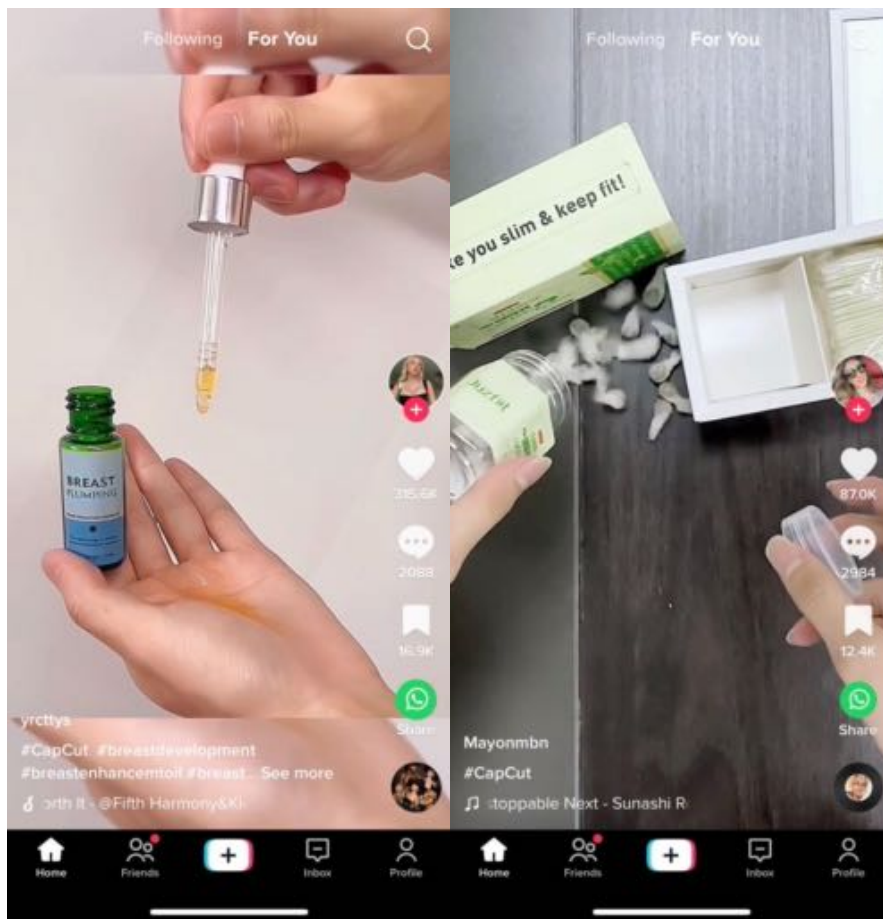
Petitioners registered a TikTok account as a 14-year-old. While scrolling through the app, Petitioners were shown ads for products related to breast enhancement and weight loss.[32]

The harm that social media does to minors' body image and eating habits has been widely discussed in public discourse in recent months, but even as of the filing of this Petition, content depicting disordered eating remains widely available to minors

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[31] We received these prompts on a TikTok account we created using the self-provided birthdate of August 17, 2008.
[32] *Id.*

and profitable to platforms,[33] and even popular among teens, who are exposed to more of it as they spend more time online.

C.   Risk of problematic internet use

Maximizing time and activities online also fosters "problematic internet use"—psychologists' term for excessive internet activity that exhibits addiction, impulsivity, or compulsion.[34] Indeed, the design features discussed in this Petition plainly impede minors' ability to put their devices down, even when they want to use them less. For example, a high school student told Common Sense Media,

> One of the challenges I face with social media is getting off it. Once I get on, I have to really force myself off it because it's so addictive. All I'm doing is scrolling, but I'm subconsciously looking for an end so I can feel accomplished. But the scrolling never stops.[35]

Similarly, a teen told Harvard researchers Emily Weinstein and Carrie James she wants to cut back on her TikTok use, but finds it extremely difficult:

> I can sit there for hours on end just scrolling through this app . . . . I can't even count how many times I have fallen asleep on TikTok. It has taken over my life.[36]

These teens' experiences reflect those of the majority of their peers. A 2016 nationwide survey of minors ages 12 to 18 found that 61% of teens thought they spent too much time on their mobile devices, and 50% felt "addicted" to them.[37] In a 2022 Pew Research survey, 35 percent of teens said they are on YouTube, TikTok, Instagram,

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[33] *See generally* Fairplay, *supra* note 27.
[34] Chloe Wilkinson et al., *Screen Time: The Effects on Children's Emotional, Social, and Cognitive Development* at 6 (2021), https://informedfutures.org/wp-content/uploads/Screen-time-The-effects-on-childrens-emotional-social-cognitive-development.pdf.
[35] Katie Joseff, *Social Media Is Doing More Harm than Good*, Common Sense Media (Dec. 17, 2021), https://www.commonsensemedia.org/kids-action/articles/social-media-is-doing-more-harm-than-good.
[36] Emily Weinstein & Carrie James, *Behind Their Screens: What Teens Are Facing (And Adults Are Missing)*, MIT Press, at 31 (2022).
[37] Common Sense, *Dealing with Devices: Parents* 10-11 (2016), https://www.commonsensemedia.org/sites/default/files/research/report/commonsense_dealingwithdevices-topline_release.pdf.

Snapchat, or Facebook "almost constantly."[38] Over half of teens who describe being online or on social media "almost constantly" said they use social media platforms too much.[39]

Research indicates that problematic internet use may disproportionately impact Black and Hispanic/Latino minors. Common Sense Media reports that white preteens (ages 8-12) average 4.5 hours of screen time use for entertainment daily, compared to Black preteens (6.5 hours) and Hispanic/Latino preteens (7 hours). Teenagers spend even more time online: white teens spend approximately 8 hours per day on screens for entertainment, and Black and Hispanic/Latino teens approximately 10 hours per day.[40] Fifty-six percent of Black teens and 55% percent of Hispanic teens describe being online "almost constantly," compared with 37% of white teens.[41]

Problematic internet use, in turn, is linked to a host of additional problems. For example, in one study of 564 minors between the ages of 7 and 15 spearheaded by the Child Mind Institute in New York, researchers found that problematic internet use was positively associated with depressive disorders, Attention Deficit Hyperactivity Disorder, general impairment, and increased sleep disturbances.[42] A meta-analysis of peer-reviewed studies involving cognitive findings associated with problematic internet use in both adults and adolescents found "firm evidence that PIU . . . is associated with cognitive impairments in motor inhibitory control, working memory, Stroop attentional inhibition and decision-making."[43] Another study of over 11,000 European adolescents found that among teens exhibiting problematic internet use, 33.5% reported moderate to severe depression; 22.2% reported self-injurious behaviors such as cutting; and 42.3%

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[38] Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Research Center (Aug. 10, 2022), https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022.

[39] *Id.*

[40] Common Sense, *The Common Sense Census: Media Use by Tweens and Teens* at 12 (2021), https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf. These hours may include multitasking on several screens at once.

[41] Vogels et al., *supra* note 38.

[42] Restrepo et al., *Problematic Internet Use in Children and Adolescents: Associations with Psychiatric Disorders and Impairment*, 20 BMC Psychiatry 252 (2020), https://doi.org/10.1186/s12888-020-02640-x.

[43] Konstantinos Ioannidis et al., *Cognitive Deficits in Problematic Internet Use: Meta-Analysis of 40 Studies*, 215 British Journal of Psychiatry 639, 645 (2019), https://pubmed.ncbi.nlm.nih.gov/30784392/.

reported suicidal ideation.[44] The incidence of attempted suicide was also ten times higher for teens exhibiting problematic internet use than their peers who exhibited healthy internet use.[45]

D.   Harm to physical health

Maximizing minors' time spent online at the expense of sleep or movement also harms minors' physical health. When minors are driven to spend more time online, they sleep less—because it is impossible to be online and sleep at the same time, because stimulation before bedtime disrupts sleep patterns, and because many of the design features discussed in this Petition make users feel pressured to be connected constantly, and that feeling doesn't always go away at nighttime. Indeed, research shows that minors who exhibit problematic internet use often suffer from sleep problems.[46] One-third of teens say that at least once per night, they wake up and check their phones for something other than the time, such as to check their notifications or social media.[47] Some teens set alarms in the middle of the night to remind them to check their notifications or complete video game tasks that are only available for a limited time.[48] In addition, screen time before bed is known to inhibit academic performance in minors.[49] Teenagers who use social media for more than five hours per day are about 70% more likely to stay up late on school nights.[50] A lack of sleep in teenagers has been linked to inability to concentrate, poor grades, drowsy-driving incidents, anxiety, depression, thoughts of suicide, and even suicide attempts.[51]

Decades of research have shown that more time online is consistently correlated with minors' risk of obesity, which in turn increases their risk of serious illnesses like

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[44] Michael Kaess et al., *Pathological Internet use among European adolescents: psychopathology and self-destructive behaviours*, 23 Eur. Child & Adolescent Psychiatry 1093, 1096 (2014), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4229646/.

[45] *Id.*

[46] Restrepo et al., *supra* note 42.

[47] Common Sense, *Screens and Sleep: The New Normal: Parents, Teens, Screens, and Sleep in the United States* at 7 (2019), https://www.commonsensemedia.org/sites/default/files/research/report/2019-new-normal-parents-teens-screens-and-sleep-united-states-report.pdf.

[48] Weinstein & James, *supra* note 36, at 38.

[49] Wilkinson et al., *supra* note 34, at 4.

[50] *Heavy Social Media Use Linked to Poor Sleep*, BBC News (Oct. 23, 2019), https://www.bbc.com/news/health-50140111.

[51] *Among teens, sleep deprivation an epidemic*, Stanford News Ctr. (Oct. 8, 2015), https://med.stanford.edu/news/all-news/2015/10/among-teens-sleep-deprivation-an-epidemic.html.

diabetes, high blood pressure, heart disease, and depression.[52] Spending time online displaces time when minors could be engaging in physical activity.[53] Further, when minors spend more time online, they are exposed to more advertisements for unhealthy products,[54] which are heavily targeted toward minors.[55] In addition, poor sleep quality—which, as discussed above, is associated with problematic internet use—increases the risk of childhood obesity by 20%.[56]

A Twizzlers ad plays on YouTube. This particular ad was encountered before viewing a Minecraft-related video.

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[52] Jeff Chester et al., *Big Food, Big Tech, and the Global Childhood Obesity Pandemic* at 3 (2021), https://www.democraticmedia.org/sites/default/files/field/public-files/2021/full_report.pdf.

[53] E de Jong et al., *Association Between TV Viewing, Computer Use and Overweight, Determinants and Competing Activities of Screen Time in 4- to 13-Year-Old Children*, 37 Int'l J. Obesity 47, 52 (2013), https://pubmed.ncbi.nlm.nih.gov/22158265/.

[54] *Id.*

[55] Chester et al., *supra* note 52.

[56] Yanhui Wu et al., *Short Sleep Duration and Obesity Among Children: A Systematic Review and Meta-Analysis of Prospective Studies*, 11 Obesity Rsch. & Clinical Prac. 140, 148 (2015), https://pubmed.ncbi.nlm.nih.gov/27269366/; Michelle A. Miller et al., *Sleep Duration and Incidence of Obesity in Infants, Children, and Adolescents: A Systematic Review and Meta-Analysis of Prospective Studies*, 41 Sleep 1, 15 (2018), https://pubmed.ncbi.nlm.nih.gov/29401314/.

E.   Harm to privacy

Design features that maximize minors' time and activities online also exacerbate privacy harms. Like all users, minors are tracked as they engage in online activities.[57] Data about what minors do online is collected by a vast network that includes platforms, marketers, and third-party data brokers that use the information apps, websites, and services collect and retain about minors to profile them, make predictions about their choices, and influence their behavior. As the Center for Digital Democracy and Fairplay will outline in their forthcoming comments on the Commission's Advanced Notice of Proposed Rulemaking on commercial surveillance, children and teenagers do not developmentally understand digital privacy. The constant surveillance they are subjected to as a result of these techniques is manipulative, limits creativity and experimentation, and perpetuates discrimination, substantially harming children and teens.

II.   Design practices that maximize minors' time and activities online are prevalent.

Maximizing minors' time and activities online harms them in a variety of concrete and serious ways, but when minors use digital platforms, they are nevertheless besieged with features designed to maximize online time and activities. In the absence of FTC intervention, minors will continue to encounter these features everywhere, and the manipulation tactics will continue to become more extreme.[58]

The FTC can promulgate rules defining acts or practices that are unfair or deceptive where it has "reason to believe that the unfair or deceptive acts or practices which are the subject of the proposed rulemaking are prevalent."[59] Petitioners urge the

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[57] *See, e.g.*, Reyes et al., *"Won't Somebody Think of the Children?" Examining COPPA Compliance at Scale*, 3 Proceedings on Privacy Enhancing Technologies 63, at 77 (2018), https://blues.cs. berkeley.edu/blog/2018/04/25/wont-somebody-think-of-the-children-examining-coppa-compliance-at-scale/ (finding that out of 5,855 child-directed apps, roughly 57% were collecting personal information in potential violation of the Children's Online Privacy Protection Act).
[58] *Compare* Marisa Meyer et al., *Advertising in Young Children's Apps: A Content Analysis*, 40 Journal of Developmental and Behavioral Pediatrics (Aug. 2018), https://www.childrenstech. com/files/2018/11/Advertising_in_Young_Children_s_Apps___A_Content.99257.pdf, *with* Jenny Radesky et al., *Prevalence and Characteristics of Manipulative Design in Mobile Applications Used by Children*, 5 JAMA Network Open 1 (June 17, 2022), https://jamanetwork.com/journals/ jamanetworkopen/fullarticle/2793493.
[59] 15 U.S.C. § 57a(b)(3).

FTC to use this authority to prohibit three categories of engagement-optimizing design features that are categorically unfair: low-friction variable rewards design features, navigation manipulation design features, and social manipulation design features.[60] Petitioners discuss these categories in turn below. For each category Petitioners offer a definition; explain how design features that fall in the category function to maximize minors' time and activities online; illustrate the category's prevalence across websites, services, games, and apps used by minors; and discuss further harms—beyond those that flow generally from increasing time and activities online—caused by design features in the category.

In addition to the examples given throughout this Petition, Petitioners have attached an appendix that further illustrates the prevalence of these unfair engagement maximization features across a plethora of apps targeting minors.[61] The appendix, compiled as an informal study by Petitioners, includes over 80 examples of these practices in games and social media apps.

Of note, this Petition does not focus solely on sites and services that are obviously designed for and directed to minors. In an effort to establish prevalence, Petitioners includes examples taken from digital platforms that are used by both minors and adults. This is because regardless of whether or not a site or service is obviously child-directed, minors suffer harm as a result of these design features, and many of these features are widespread across sites and services that are used by adults and also heavily used by minors. For example, as Petitioners illustrate below, many of these design features are particularly prevalent in social media services, many of which are extremely popular among minors. According to internal research by Meta—Facebook's and Instagram's parent company—by 2016, "[t]he majority of 10–12 year olds [had] at least one social media account."[62] A slide from a 2017 internal presentation at Meta states "Instagram is for teens," describes the perceived user base as primarily middle schoolers and high schoolers, and includes quotes from 11- and 12-year-olds saying that people their age use Instagram.[63]

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[60] These types of harmful design features, though distinct, are not mutually exclusive, and some common design features fall into multiple categories.
[61] *See generally* Appendix.
[62] Spence v. Meta Platforms, *supra* note 22, at 68.
[63] *Id.*
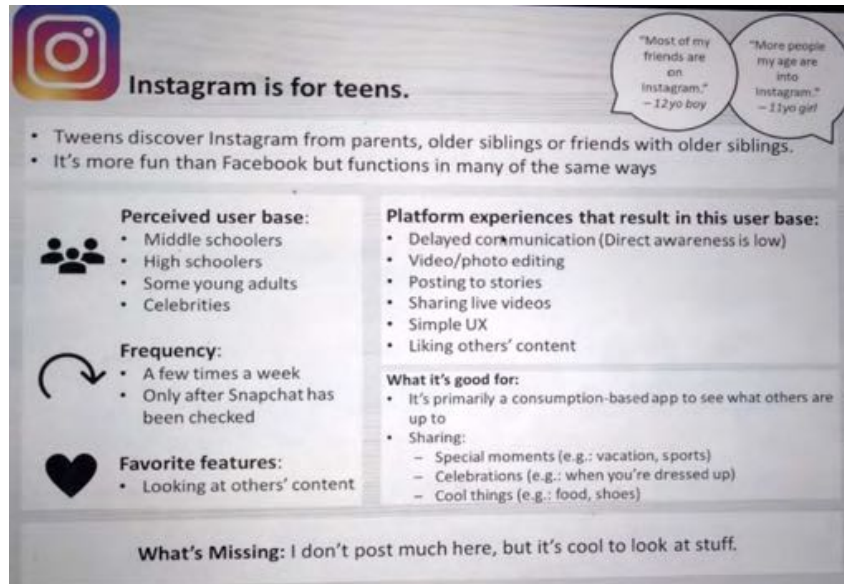
A 2017 internal presentation at Meta indicates that the company thinks of Instagram as a product for tweens and teens.[64]

In 2021, 57% of surveyed American minors ages 12–17 said they used Instagram every week, and 63% said they used TikTok every week.[65] YouTube was the most popular social media platform among American adolescents in 2021; 72% said they used the service every week.[66] Last year, 13% of surveyed children ages 8- to 12-year-olds used Snapchat, 10% used Instagram, and 8% used Facebook.[67] This year, 95% of surveyed American teens ages 13-17 reported using YouTube, and 19% of surveyed American teens reported using YouTube "almost constantly."[68] Second most popular was TikTok, with 67% using the platform, and 16% using TikTok "almost constantly."[69] Nearly tied, 62% and 59% of teens reported using Instagram and Snapchat, respectively, with 10% of teens reporting almost constant use of Instagram and 15% reporting almost constant use of Snapchat.[70] Finally, 32% of teens reported using Facebook.[71]

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[64] *Id.*

[65] Salvador Rodriguez, *TikTok usage surpassed Instagram this year among kids aged 12 to 17, Forrester survey says*, CNBC (Nov. 18, 2021, 5:51 PM EST), https://www.cnbc.com/2021/11/18/tiktok-usage-topped-instagram-in-2021-among-kids-12-to-17-forrester-.html.

[66] *Id.*

[67] Common Sense, *supra* note 40 at 5.

[68] Vogels et al., *supra* note 38.

[69] *Id.*

[70] *Id.*

[71] *Id.*

These design practices also are prevalent both in games that are obviously minors' games[72] and in games rated for older audiences that are played by large numbers of minors. For example, a popular game for teens and even younger minors, Fortnite, which receives a "T" (for "teen") rating from the ESRB, is played by large numbers of younger minors.[73] According to a 2019 study, more than 25% of preteens in the US play Fortnite.[74]

The unfair and deceptive practices specified in this Petition are prevalent in part because they are integral to gaming and social media companies' business model. The gaming industry and social media platforms' practices intentionally target minors in order to maximize data collection and ad revenue. First and foremost, gaming app companies employ teams of specialists who focus at each stage in the game's development on cost-efficient user acquisition and long-term player retention.[75] Each of the big social media platforms (Meta (Facebook and Instagram), Google (YouTube), and TikTok) have both in-house and external research initiatives designed to document and improve engagement reporting and have projects that use neuromarketing and virtual reality techniques to measure effectiveness.[76] The mobilization of all of these resources

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[72] *See, e.g.*, Jenny Radesky et al., *Prevalence and Characteristics of Manipulative Design in Mobile Applications Used by Children*, 5 JAMA Network Open 1 (2022), https://jamanetwork.com/ journals/jamanetworkopen/fullarticle/2793493.

[73] *See* David Chapman, *Fortnite Game Review*, Common Sense Media (last updated Sept. 30, 2021), https://www.commonsensemedia.org/game-reviews/fortnite; Edward C. Baig, *'Fortnite': How Young Is Too Young to Play?*, USA Today (Feb. 26, 2019), https://www.usatoday. com/story/tech/2019/02/26/parents-guide-fortnite-how-old-too-young-let-kids-play/ 2800065002/.

[74] *See* Nestor Gilbert, *78 Essential Fortnite Statistics: 2022 Users & Revenue Data*, FinancesOnline (last updated Nov. 5, 2022), https://financesonline.com/fortnite-statistics/.

[75] *See, e.g.*, *Leading User Acquisition in the quickly growing mobile games industry: Get to know Winnie Wen of Jam City*, Jam City (Nov. 15, 2021), https://www.jamcity.com/leading-user-acquisition-in-the-quickly-growing-mobile-games-industry-get-to-know-winnie-wen-of-jam-city/; *Mediation that supports everything your app business needs to scale*, ironSource, https://www.is. com/mediation/; Mihovil Grguric, *15 Key Mobile Game Metrics That Developers MUST Track*, udonis (Sept. 20, 2022), https://www.blog.udonis.co/mobile-marketing/mobile-games/key-mobile-game-metrics.

[76] *See, e.g.*, Meta Careers, *Shape the Future of Marketing with the Marketing Science Team*, Meta (Sept. 19, 2018), https://www.metacareers.com/life/come-build-with-the-facebook-marketing-science-team/; Bob Arnold & Anton Miller, *How Google's Media Lab Boosts YouTube Ad Results*, AdAge (May 14, 2021), https://adage.com/article/google/how-googles-media-lab-boosts-youtube-ad-results/2335796; *TikTok Insights*, TikTok for Business (2022), https://www.tiktok. com/business/en-US/insights; *TikTok Ads Break Through Better than TV and Drive Greater*

indicates that websites, apps, and services are built not for gameplay or user experience, but for maximization of profit.

For example, Hello Kitty Nail Salon's Budge Studios, now owned by Tilting Point, uses machine learning to optimize offers and ads and build a steady wave of engaged players.[77] Games also deploy an array of metrics to define and structure gameplay in order to generate revenue.[78] The same is true of social media. All the major platforms provide both content creators and marketers with an array of internally developed and assessed measures designed to trigger, track and document the performance of a variety of suggested digital interactions. For example, TikTok offers marketers a massive array of data about the advertisements they run on the platform, including the number of people who watched 25%, 50%, 75%, or 100% of an ad; the total number of people who clicked an ad and added something to a shopping cart; and the total value of all of those shopping carts.[79] TikTok also provides advertisers tools to target audiences with precision—a marketer can target up to 400 "custom" audiences at one time.[80] Google offers YouTube creators and marketers a variety of metrics tied to the delivery of financially related transactions, such as the purchasing of products, generating subscriptions and forms of payment.[81] This drive for engagement from both the gaming and social media platform industries has meant the rapid expansion of harmful manipulative design practices.

Audience Engagement, TikTok for Business, https://www.tiktok.com/business/library/TikTokDrivesGreaterAudienceEngagement.pdf; *How Virtual Reality Facilitates Social Connection*, Meta, https://www.facebook.com/business/news/insights/how-virtual-reality-facilitates-social-connection.

[77] *Tilting Point's Proprietary Technology*, Tilting Point (2021), https://www.tiltingpoint.com/what-we-do/our-tech/; *Tilting Point Acquires Budge Studios, Expanding into Kids Entertainment*, Business Wire (Mar. 16, 2022, 10:00 AM EST), https://www.businesswire.com/news/home/20220316005291/en/Tilting-Point-Acquires-Budge-Studios-Expanding-Into-Kids-Entertainment.

[78] Jonathan Fishman, *The Complete App Store Optimization (ASO) Guide (2022)*, Storemaven (Sept. 27, 2021), https://www.storemaven.com/academy/app-store-optimization-guide/; Aysu Burak, *5 Tips for Critical KPIs*, Mobidictum (Oct. 29, 2021), https://mobidictum.biz/5-tips-for-critical-kpi-crazylabs/.

[79] *All Metrics*, TikTok Business Help Center, https://ads.tiktok.com/help/article?aid=10000165.

[80] *Engagement,* TikTok Business Help Center, https://ads.tiktok.com/help/article?aid=6721963298155134982.

[81] *Measure key moments for audience retention*, YouTube Help, https://support.google.com/youtube/answer/9314415?hl=en.

Accordingly, Petitioners establish the prevalence of these practices by examining platforms popular with minors as well as those widely used across age groups. The prevalence of each category of design feature is addressed in turn.

A. Low-friction variable rewards

The first type of design practice that Petitioners urge the FTC to recognize as categorically unfair when used on minors is the low-friction variable reward. Petitioners define this design practice category as:

(a) **Low-Friction Variable Rewards.**
    (i)   Rewarding content or virtual items offered by a website or service that:
        (1) Are awarded to users for mere scrolling, tapping, and/or opening or logging into the website or service;
        (2) Vary unpredictably in type, amount, and/or timing; and
        (3) Generally increase as a minor spends more time on the website or service, or visits it more frequently.
    (ii)   Examples of prohibited variable reward design features include:
        (1) **Endless Scroll and Autoplay with Variable Content.** Variable content loaded continuously without interruptions or pauses.
        (2) **Variable Reward Notifications and Nudges.** Notifications and nudges that do not originate from a minor's individual connections or preferences on an online website or service that encourage minors to return to the online website or service at variable intervals to receive a reward.

Low-friction variable rewards are highly effective at maximizing the amount of time users spend on the service. The psychological technique that renders these features effective is based on research that predates the internet by many years,[82] beginning with experiments by famous psychologist B.F. Skinner in the first half of the 20th Century.[83] Research by Skinner and others revealed that when test subjects—both humans and other animals—are rewarded unpredictably for a given action, they will engage in the

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[82] J. E. Staddon & D. T. Cerutti, *Operant Conditioning*, 54 Annual Review of Psychology 115–144 (2003), https://doi.org/10.1146/annurev.psych.54.101601.145124.

[83] B. F. Skinner, *Two Types of Conditioned Reflex: A Reply to Konorski and Miller*, 16 J. Gen. Psychology, 272-279 (1937), https://doi.org/10.1080/00221309.1937.9917951.

action for a longer period of time than if the reward is predictable.[84] At a chemical level, this is because the brain generates more dopamine in response to an uncertain reward than in response to an expected and reliable one.[85] The tendency of variable rewards to drive compulsive behavior is sometimes referred to as the "Vegas Effect," and is the primary mechanism at work in slot machines, keeping players sitting in front of machines for hours on end.[86]

Design features that incorporate variable rewards have been utilized and refined by online services for years to drive engagement. In the words of Nir Eyal, a consumer psychology expert who wrote the popular industry how-to *Hooked: How to Build Habit-Forming Products*, "[v]ariable schedules of reward are one of the most powerful tools that companies use to hook users."[87] Today, some platforms use machine learning technologies to fine-tune variable rewards to ensure maximum appeal to each user.[88] For the reasons outlined in Section III.B below, minors are particularly vulnerable to these reward systems.[89]

One common example of variable rewards design feature is the infinite or **endless scroll mechanism** with variable content that is deployed across social media services. When a platform uses endless scroll, a user is continuously fed more pieces of content, with no endpoint, as they scroll down a feed or page. When services load content into streams viewed by endless scroll, a user can never predict what will come next or how interesting it will be. The user is rewarded at unpredictable intervals and

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[84] Laura MacPherson, *A Deep Dive into Variable Designs and How to Use Them*, DesignLi (Nov. 8, 2018), https://designli.co/blog/a-deep-dive-on-variable-rewards-and-how-to-use-them/; Mike Brooks, *The "Vegas Effect" of Our Screens*, Psychol. Today (Jan. 4, 2019), https://www. psychologytoday.com/us/blog/tech-happy-life/201901/the-vegas-effect-our-screens.

[85] Anna Hartford & Dan J. Stein, *Attentional Harms and Digital Inequalities*, 9 JMIR Mental Health 2, 3 (Feb. 11, 2022), https://pubmed.ncbi.nlm.nih.gov/35147504/ ("At the level of our neural reward system, an uncertain reward generates a more significant dopamine response than those generated by a reliable reward.").

[86] Brooks, *supra* note 84.

[87] Nir Eyal, *The Hook Model: How to Manufacture Desire in 4 Steps*, Nir and Far, https://www. nirandfar.com/how-to-manufacture-desire/.

[88] Hartford & Stein, *supra* note 85 ("On prominent internet platforms, sophisticated machine learning technologies now endeavor to randomize rewards for each user."). The collection of data to inform these machine learning technologies may in turn be used to fuel targeted marketing. *Id.*

[89] *See* discussion *infra* Section III.B, "Minors lack the developmental maturity necessary to protect themselves from design features that maximize engagement."

levels with pieces of content they find funny, entertaining, or otherwise interesting.[90] Harvard researchers Emily Weinstein and Carrie James explain in their recent book on teens and technology: "Apps like TikTok have an endless database of content to offer users. Some videos are pointless or boring or upsetting; others give a fleeting reward in the form of funny, relatable, or compelling content."[91] The pursuit of the next "rewarding" piece of content keeps kids scrolling. Highlighting both the low-friction and variable nature of Snapchat, one 16-year-old told the researchers that Snapchat is "so addictive because it's so easy to go on to the next thing . . . . And you never know what amazing thing could be on the next Story, and all you have to do is tap once and you get to the next thing."[92]

All popular social media platforms, including those used heavily by minors such as TikTok, Snapchat, Instagram, and Facebook, feature endless scroll. These platforms supply minor users with unpredictable variable rewards by strategically and intermittently surfacing content that users are predicted to engage with. For example, an internal document from TikTok explains that the service presents content to users to maximize for two closely related metrics: user retention (the likelihood that a user will return) and time spent on the platform.[93] In a video on YouTube, a product manager for YouTube's recommendation system explains that the platform's recommendation algorithm "is designed to do two things: match users with videos they're most likely to watch and enjoy, and . . . recommend videos that make them happy. . . . [S]o our viewers keep coming back to YouTube, because they know that they'll find videos that they like there."[94] A blog post by Adam Mosseri, head of Instagram, explains, "[W]e make a set of predictions. These are educated guesses at how likely you are to interact with a post in different ways. . . . The more likely you are to take an action, and the more heavily we weigh that action, the higher up you'll see the post."[95]

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[90] GCFGlobal.org, *Digital Media Literacy: Why We Can't Stop Scrolling*, https://edu.gcfglobal.org/en/digital-media-literacy/why-we-cant-stop-scrolling/1/.

[91] Weinstein & James, *supra* note 36, at 33.

[92] *Id.* at 34.

[93] Ben Smith, *How TikTok Reads Your Mind*, N.Y. Times, (Dec. 5, 2021), https://www.nytimes.com/2021/12/05/business/media/tiktok-algorithm.html.

[94] Creator Insider, *Behind the Algorithms - How Search and Discovery Works on YouTube*, YouTube (Apr. 16, 2021), https://youtu.be/9Fn79qJa2Fc.

[95] Adam Mosseri, *Shedding More Light on How Instagram Works*, Instagram (June 8, 2021), https://about.instagram.com/blog/announcements/shedding-more-light-on-how-instagram-

The companies that operate these platforms are aware of the value of variable rewards for driving users' online time and maximizing profits, as well as the risks associated with these types of rewards. For example, in 2020, responding to internal research indicating that teen users had difficulty controlling their use of Facebook and Instagram, a Meta employee wrote to a colleague:

> I worry that the driving [users to engage in more frequent] sessions incentivizes us to make our product more addictive, without providing much more value. How to keep someone returning over and over to the same behavior each day? Intermittent rewards are the most effective (think slot machines), reinforcing behaviors that become especially hard to extinguish.[96]

Amid public concern regarding teenagers' social media use and in particular following the revelations by whistleblower Frances Haugen, companies have begun to deploy some countervailing measures, but it is unknown whether these measures are effective, and in any event, these measures do not resolve the crux of the problem. For example, at the end of 2021 Instagram introduced a new feature called "Take A Break" that, when turned on, prompts users to take a break after they have been continuously scrolling for a certain amount of time.[97] A similar feature was already offered on YouTube,[98] which autoplays variable content in a design feature that functions in a psychologically similar way to the endless scroll. TikTok also recently introduced some new features that prompt users who spend more than 100 minutes in the app in a single

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works ("[W]e make a set of predictions. These are educated guesses at how likely you are to interact with a post in different ways. . . . The more likely you are to take an action, and the more heavily we weigh that action, the higher up you'll see the post.").

[96] Spence v. Meta Platforms, *supra* note 22, at 82.

[97] Adam Mosseri, *Raising the Standard for Protecting Teens and Supporting Parents Online*, About Instagram (Dec. 7, 2021), https://about.instagram.com/blog/announcements/raising-the-standard-for-protecting-teens-and-supporting-parents-online. Instagram recently updated the Take A Break feature to integrate messages from popular content creators into the break reminders. Andrew Hutchinson, *Instagram Adds New Prompts to Reduce Harmful Impacts on Young Users*, Social Media Today (June 14, 2022), https://www.socialmediatoday.com/news/instagram-adds-new-prompts-to-reduce-harmful-impacts-on-young-users/625512/.

[98] *Take a Break Reminder*, YouTube Help, https://support.google.com/youtube/answer/9012523.

day to take a break.[99] But these features do little to limit the allure of endless scroll because users can simply hit "dismiss" when reminders appear on the screen. Hence, such features merely constitute single points of friction that do not alter the overall low-friction nature of endless scroll. Further, these features are only turned on by default for users aged 13-17 on YouTube, so users must opt-in to the feature via their account activity settings. Ultimately, these optional, opt-in reminders—which also are not available on all platforms[100]—are an insufficient solution to the allure of endless scroll.

Low-friction variable rewards also appear with great frequency in games to keep players hooked. In general, variable rewards in games often appear in the form of chests or similar items containing virtual items that can be used in the game.

In the popular game "SpongeBob: Krusty Cook-Off" from Tilting Point LLC, the player is periodically given rewards chests containing a variety of in-game items.

[99] Jordan Furlong, *Investing in Our Community's Digital Well-Being*, TikTok Newsroom (June 9, 2022), https://newsroom.tiktok.com/en-us/investing-in-our-communitys-digital-well-being.
[100] Sarah Perez, *Amid Growing Concerns Around App Addiction, TikTok Rolls out More Screen Tools*, TechCrunch (June 9, 2022, 3:00 AM EDT), https://techcrunch.com/2022/06/09/amid-growing-concerns-around-addiction-tiktok-rolls-out-more-screen-tools/.

In the popular game "My Talking Tom" from Outfit7 Limited, the player can spin a wheel every day to receive a free random reward. The player receives additional spins if they watch an ad.

*"Star Wars: Galaxy of Heroes" from Electronic Arts features
bronzium data cards that offer the player variable rewards.*

Another common example of the habit-forming low-friction variable rewards category of design practice is the **variable reward notification or nudge**, which appears at variable intervals and urges a user to return to an online service to receive a reward.

Such notifications or nudges are common in games and services used by minors. These nudges encourage minors to return to a platform when they may not have intended to do so, and some entice users with time-limited offers that are designed to create a sense of urgency around returning to the game.
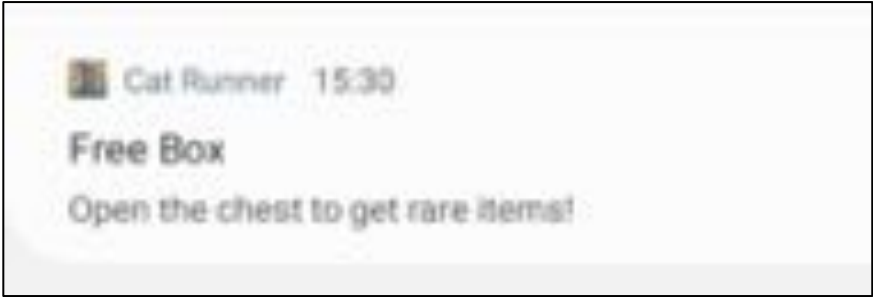
In the popular game "Cat Runner" from Ivy, the player periodically receives phone notifications to return to the app and open a free box with variable rewards.
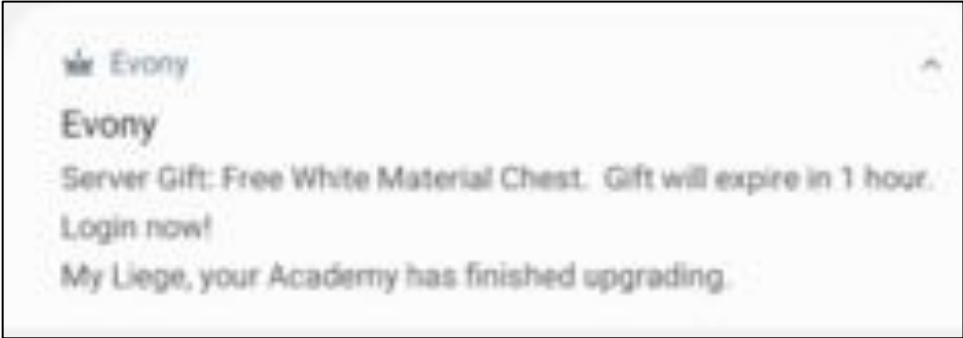
The popular game "Evony: The King's Return" from TG Inc. regularly notifies the player about free chests with variable rewards, prompting the user to return to the game before they expire.
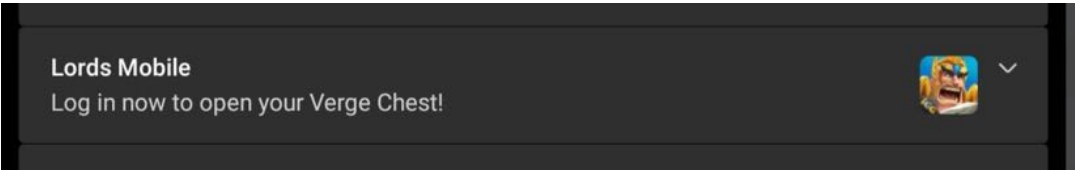
In "Lords Mobile" from I Got Games (IGG), periodic notifications are given to open 'Verge Chests' to unlock free variable rewards. See Appendix for more examples of Low-Friction Variable Rewards.

B. Navigation manipulation

The second type of design practice that Petitioners urge the FTC to recognize as categorically unfair when used on minors is navigation manipulation. Petitioners define this design practice category as:

(a) **Navigation Manipulation.**
    (i)   Design features that:
        (1) Make it difficult for a minor to navigate out of a content stream or exit an online website or service; or
        (2) Encourage seamless and continuous use of a website or service without any stopping cue(s);
        (3) Except when the primary function is to instruct minors on the functionality of, or offer narrative information central to, the website or service.
    (ii)   Examples of prohibited navigation manipulation design features include:
        (1) **Difficult Navigability.** Features that make it difficult for minors to maneuver out of a content stream or back to the home screen without viewing additional content.
        (2) **Autoplay.** Functionality that makes the next piece of content play automatically, without requiring an action from the minor.
        (3) **Strategically Timed Advertisements.** Advertisements that pop up when a minor attempts to navigate to another part of the website or online service, such as back to the main menu, on to another round of a game, or out of the website or online service altogether.

Online services widely use a variety of tools to manipulate navigation— impeding the user's ability to navigate a website or app to their desired destination— in order to prolong user engagement. Some design features in this category manipulate navigation in a way that makes it harder for a user to leave the service. Other design features in this category undermine user autonomy by manipulating navigation in a way that encourages the user to continue engaging in certain user activities that are beneficial for the platform, such as manipulating users to watch advertisements.

Some common examples of navigation manipulation practices commonly used on minors include **autoplay and strategically timed advertisements.** These techniques make it hard for a minor to navigate the online website or service because they either keep the minor on one content stream, increasing time on a device (autoplay) so as to

exclude other content, or they block the minor from moving forward (pop-up advertisements).

Even more intrusive navigation manipulation techniques include design features that lock an app's screen and force a user to watch a video or exit the app. Interactive advertisements go even further, compelling a user to click or "play" in an ad in order to continue gameplay. These are all forms of navigation manipulation because they force a player to watch a video or "play a game" while still being an ad. Neither the video nor the "game" is a part of the actual service (i.e., an app or game), yet it keeps the user on if they desire to continue to use the service.

Navigation manipulation design features are widespread in games used by minors. For example, many games frequently inject ads in the middle of gameplay that the user must watch in order to continue.

In the game "Miss Hollywood: Vacation" from Budge, immediately after earning a prize, the player must view a video ad for another Budge game for approximately five seconds before they can open the prize.

Ads injected in the middle of gameplay often are themselves interactive snippets of other games available in the app store, and lead immediately to the download screen for the advertised game—even when the user does not touch or tap the screen at any point during the ad.
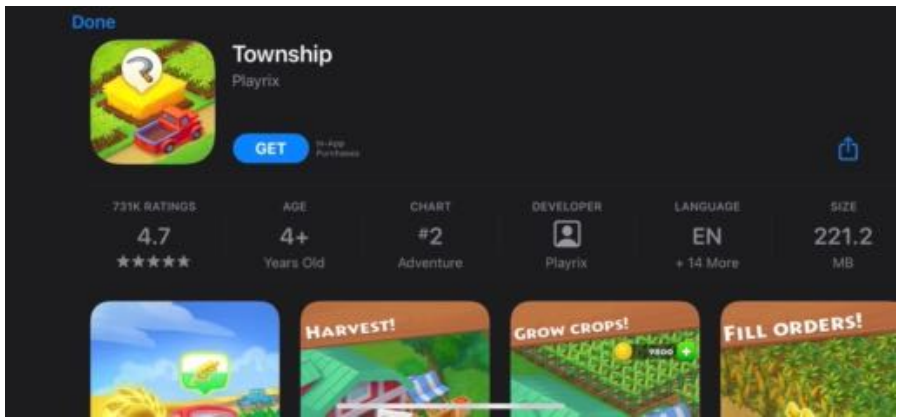
An ad for the game "Township" from Playrix is itself playable and takes the user directly to the download screen for the app.[101]

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[101] This ad was encountered in the game "Girl Games: Unicorn Slime" from Shake It.
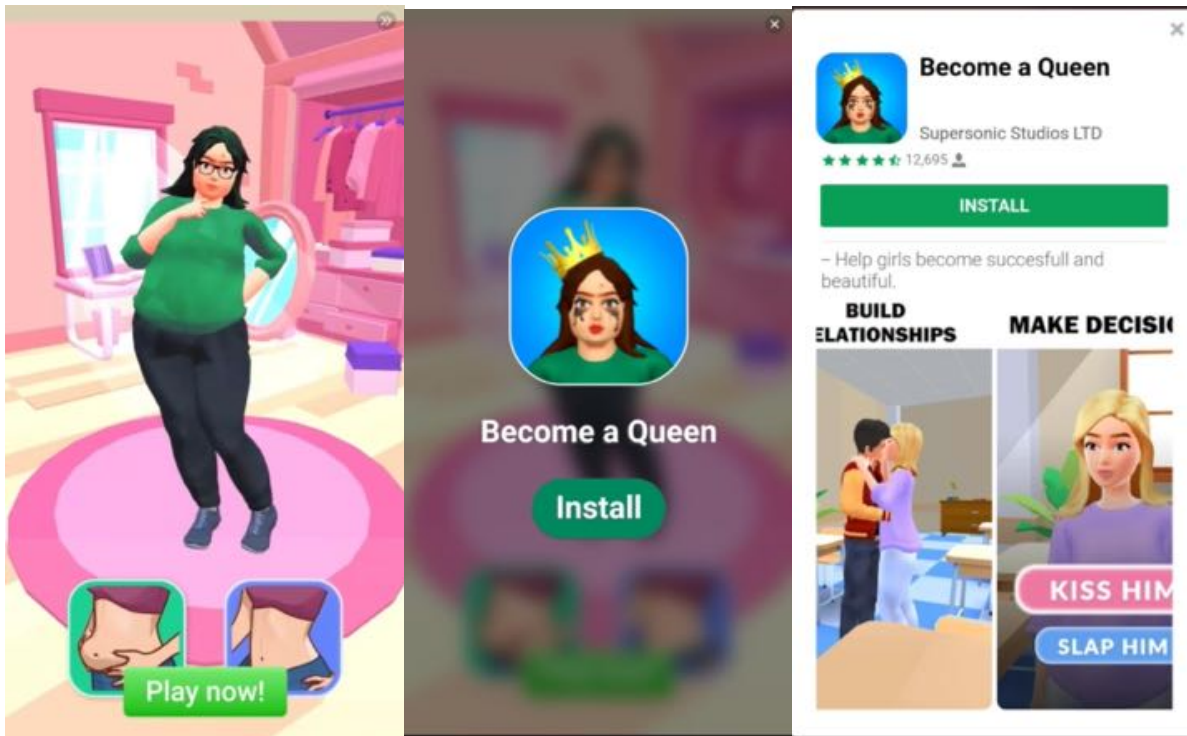
In the popular young girls' game "Monster High Beauty Shop" by CrazyLabs LTD, timed pop-up advertisements such as this appear after the player dresses up a character or navigates to another page in the app. Even when the timer expires, clicking the exit button directs the user to the app store to install the app.

These techniques are prevalent in apps used by young children. Dr. Jenny Radesky recently led a team of researchers studying design features in apps used by 160 children aged 3 to 5 years who had their own devices and found that 45.9% of the apps observed manipulated navigability to prolong gameplay by including "features like tunneling (providing no options for where to go next), pop-ups, or auto-advancing."[102] Ultimately, the prevalence combined with both the disruption it causes to gameplay and the difficulty in avoiding the navigation manipulation designs emphasizes why they are categorically unfair when used on minors.

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[102] Jenny Radesky et al., *supra* note 72.

C.   Social manipulation

The third type of design practice that Petitioners urge the FTC to recognize as categorically unfair when used on minors is social manipulation. Petitioners define this design practice category as:

(a) **Social Manipulation.**
 (i) Design features that:
  (1) Leverage a minor's desire for social relationships to encourage greater time spent and/or activities performed on the website or service.
 (ii) Examples of prohibited social manipulation design features include:
  (1) **Quantified Popularity of a Minor's Account or Content.** Displaying a quantified tally of the number of connections or interactions for a minor's account or piece of content, such as followers, views, likes, dislikes, or comments.
  (2) **Named Popularity.** Displaying the names, usernames, or other known identifiers of specific other users who have interacted with a particular piece of content, such as by viewing, liking or disliking, or commenting on it.
  (3) **Interaction Streaks.** Features that quantify interactions between users, creating pressure for interactions to continue so that the streak value continues to increase.
  (4) **Parasocial Relationship Pressure.** The use of an artificial or animated character or a popular influencer on a website or service to pressure or shame a minor into taking a certain action, such as when a game character uses insulting language or pressure to manipulate the minor into continuing to play a game, coming back at another time, making a purchase, or sharing personal information.
  (5) **Incentivized Reach to Larger Audience.** Prompting a minor to make their account visible to, or otherwise share content with, users with whom they are not already connected, or defaulting to these settings.

Socially manipulative design features that leverage users' desire for social relationships to encourage increased activity and time spent on a platform are extremely common, including in games and services used heavily by minors. These

design features are particularly prevalent—and minors likely are most often exposed to them—on social media.

Minors are particularly vulnerable to social manipulation techniques. Younger adolescents have specific developmental needs for social connectedness and are particularly attuned to social validation.[103] This can "lead to greater relinquishing of security in certain arenas to gain social validation and belonging, for example, disclosing publicly to participate in online communities and accrue large amounts of likes, comments, and followers."[104] Emily Weinstein and Carrie James write:

> [T]o tweens and teens, the kind of "rewards" social media promise are even more meaningful. Teens are primed to crave and value social validation, which is part of how they make sense of where they fit into their social worlds. Their biological sensitivity to social feedback makes them more susceptible to the pull of social media, which is at the ready with a promise of 24/7 access to likes and praising comments. Capacities for self-regulation and impulse control are also a work in progress during the teen years, which adds to the challenge of pulling away.[105]

Many social manipulation design features induce anxiety in minors that they or their content may not be as popular as that of their peers'. In the words of a Massachusetts high school student who spoke with Common Sense Media, "[I]f you get a lot of likes, then 'Yay,' you look relevant, but then if you don't get a lot of likes and/or views, it can completely crush one's confidence. Especially knowing that you're not the only one who's able to see it."[106] Not only are minors spotting and seeing posts, but now they are obsessing over the popularity of their and others' posts. These factors all converge to create a feedback loop, where because minors crave this social reinforcement, they seek it out, and ultimately are unequipped with the tools to protect

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[103] Nicholas D. Santer et al., *Early Adolescents' Perspectives on Digital Privacy,* Algorithmic Rights and Protections for Children (2021) at 6, 30.
[104] *Id.* at 6 (citing J.C. Yau & S. M. Reich, *"It's Just a Lot of Work": Adolescents' Self-Presentation Norms and Practices on Facebook and Instagram*, 29 J. Res. on Adolescence 196, 196-209 (2019)).
[105] Weinstein & James, *supra* note 36, at 33 (2022) (citing Lucy Foulkes and Sarah-Jayne Blakemore, *Is There Heightened Sensitive to Social Reward in Adolescence?*, 40 Current Opinion Neurobiology 81 (2016)).
[106] Joseff, *supra* note 35.

themselves against the allure of "rewards" that these manipulative social media designs purportedly promise.[107] By nature, these designs breed prevalence.

One way that games and services use social manipulation to increase minor users' online engagement is through **quantified popularity metrics**. These design features gamify popularity by displaying (publicly, privately, or both) the number of friends or connections a user has, the number of interactions their content has received, and sometimes also the names or usernames of specific other users who have interacted with the user or their content. Metrics that may be displayed include views, likes, dislikes, reactions, and comments received on content. Such tallies act as quantified proof of popularity and exploit minors' natural tendency to pursue social relevance.

For example, YouTube publicly displays the number of "Likes" a video has received, and until recently also publicly displayed the number of "Dislikes" it received.[108]
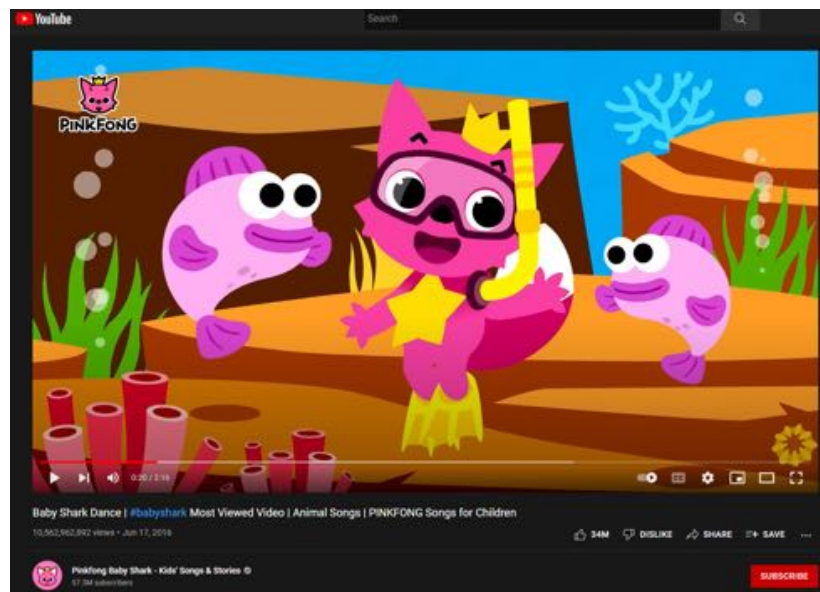
YouTube displays views and likes for each video, as well

as the total number of subscribers to the channel.

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[107] *See* discussion *infra* Section III.B.3, "Minors are more susceptible to social manipulation and peer pressure applied by design features that maximize for online engagement."
[108] Mitchell Clark, *YouTube Gives Dislikes the Thumbs-Down, Hides Public Counts*, The Verge (November 10, 2021, 5:00 PM), https://www.theverge.com/2021/11/10/22773299/youtube-dislike-button-hide-public-count-numbers-small-creator-protection [https://perma.cc/B2JF-RAZA].

TikTok displays quantified popularity metrics for each user's account, as well as for each video shared on its platform.
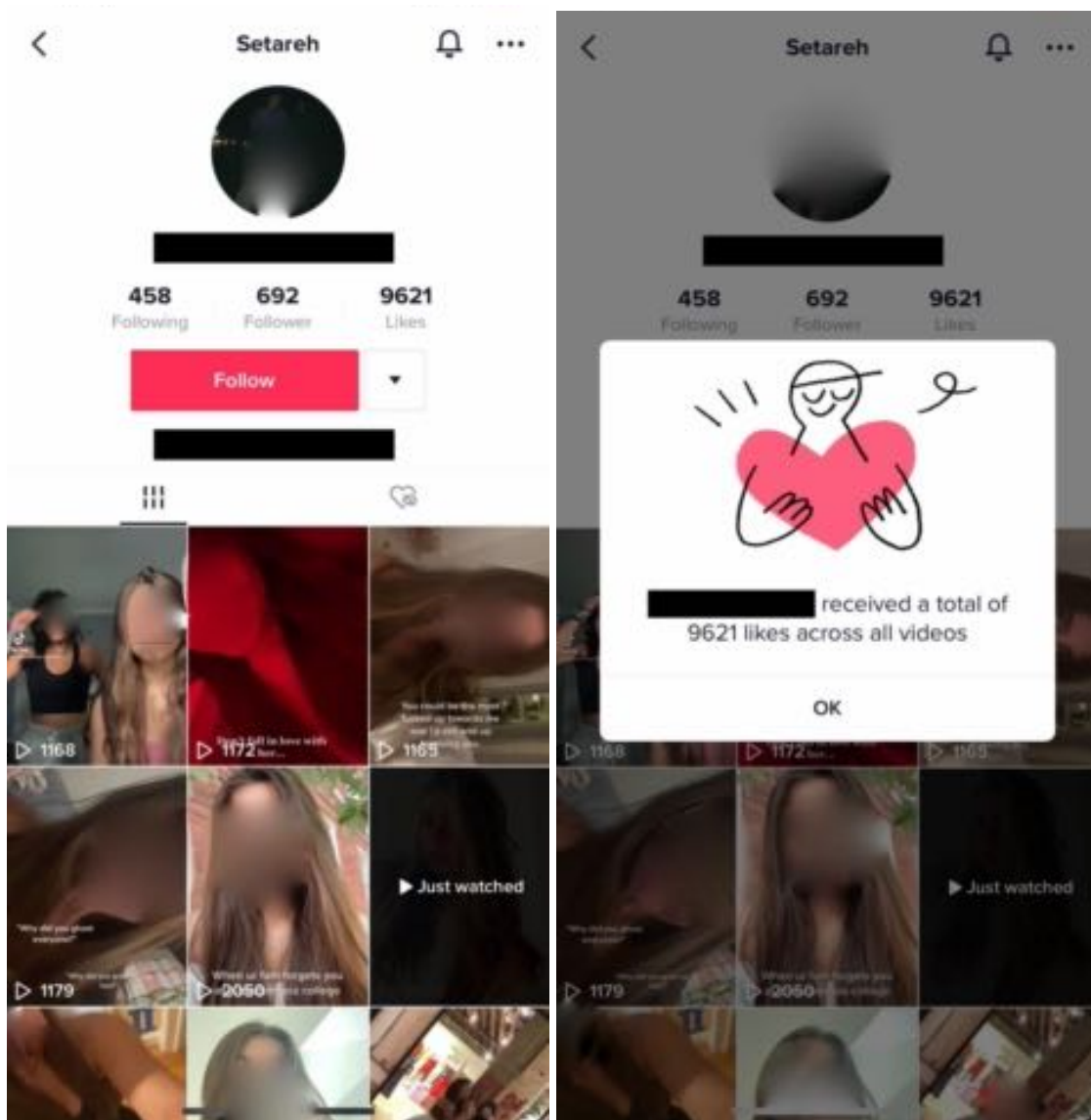
TikTok displays the total number of likes each user has received across all videos.

Instagram defaults to showing the number of likes on each post. The platform permits users to hide like and view counts on individual posts, but it does not allow users to permanently switch this setting for all their posts at once. Instead, if a user wishes to hide these metrics for their posts, the user must make that election on a post-by-post basis.
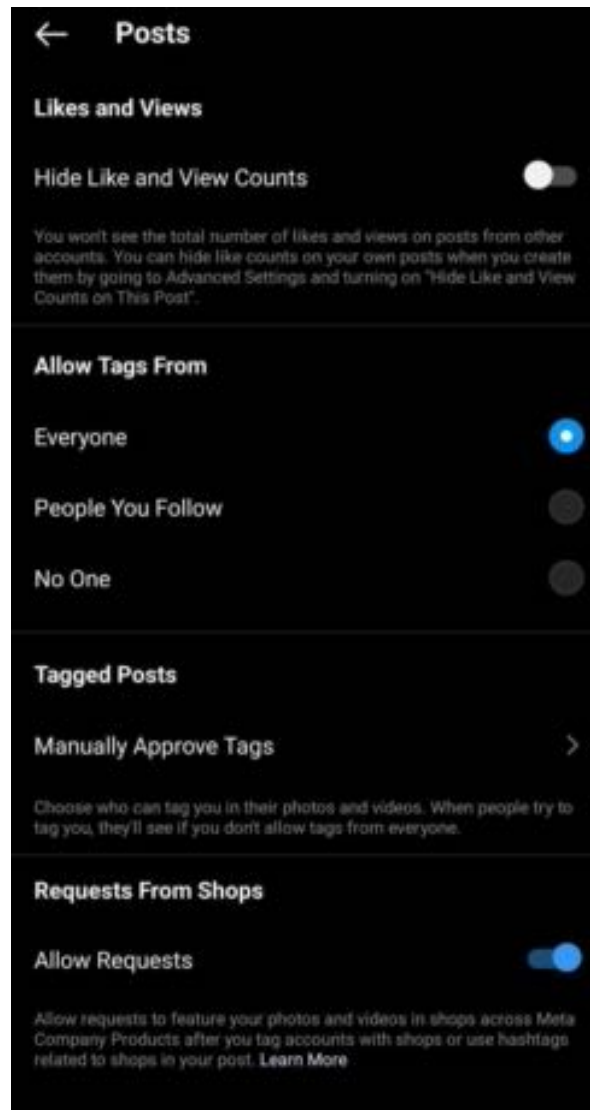
A user who wishes to avoid displaying like and view metrics for their Instagram posts must make that election on a post-by-post basis.

Similarly, Snapchat has a scoring metric that symbolizes how much the user spends their time or interacts on the app.[109]
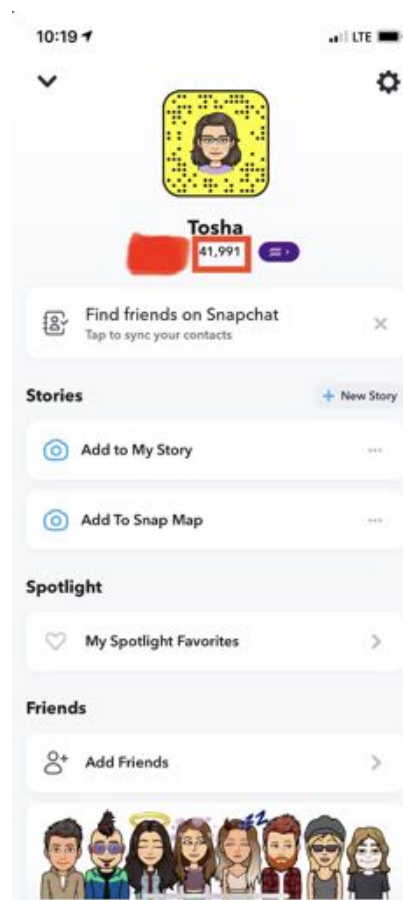
A user's score is highlighted at the top of a summary of their profile.
Users can also easily check friends' scores on their respective profiles.

[109] Briallyn Smith, *How Does Snapchat Score Work? How to Increase Your Score*, Make Use Of (April 2, 2022), https://www.makeuseof.com/tag/improve-snapchat-score/.

Games also often use quantified popularity for in-game features that players can share publicly with other players of the game.

In "Hello Kitty World 2: Sanrio Kaw" from Access Bright, Japan Inc., when a user visits another user's theme park, the top left corner displays the number of likes their theme park received. This user here is shown to have 3 likes.

Some games and services also utilize **named popularity** features by displaying the names of specific users who have interacted with a particular piece of content by viewing, liking, disliking, sharing or commenting on it. These features encourage users to engage with content in pursuit of achieving or reinforcing social relevance with particular other people, such as close friends or people they perceive as cool or influential. These visible names may not even be people the user follows.

Instagram displays the usernames and profile pictures of specific users who have liked a piece of content. The first username displayed after the "liked by" on a post, in this case @aimi.allover, is not necessarily someone the user viewing the photo follows.
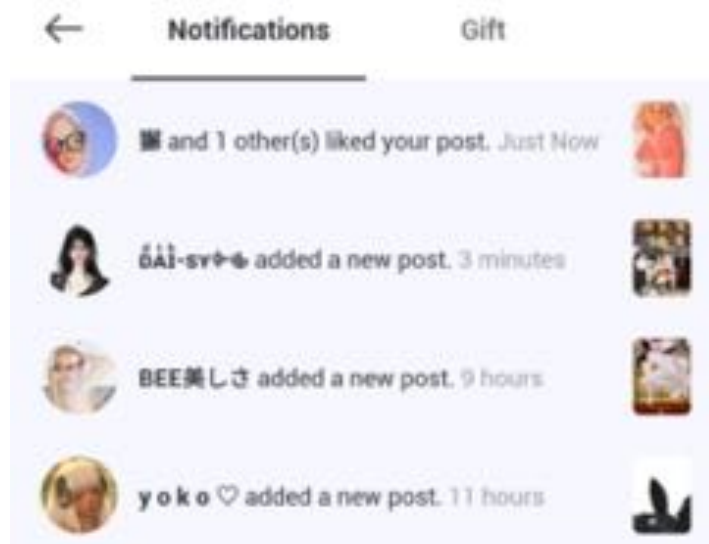
"Zepeto" from Naver Z Corporation displays the usernames and profile pictures of specific users who have interacted with a piece of content.

Games and services also sometimes maximize minors' online engagement through the use of **interaction streaks**. Streaks are design features that pressure users to continue an ongoing series of interactions with the service or another user. For example, Snapchat keeps track of how many consecutive days two people have been Snapchatting, displaying the number of consecutive days—the "Snapstreak" value—next to each friend's name.[110]
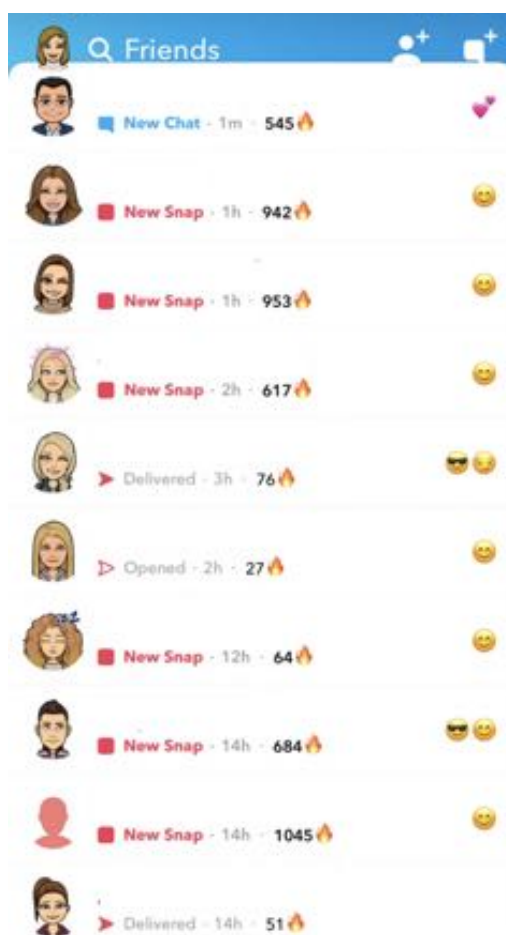
A number with a flame appears next to each friend's name, indicating the length (in days) of the user's Snapstreak with the friend.

For teens in particular, Snapstreaks are a vital part of using the app, and—for many—of their social lives as a whole.

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[110] *Longest Snapchat Streak*, TechMirror (April 19, 2020), https://thetechmirror.com/longest-snapchat-streak/ [https://perma.cc/46BU-4VBM].

Fostering compulsive daily use of its platforms and measuring the strength of a friendship through Snapchat participation clearly benefits Snap, but Snapstreaks undermine young people's wellbeing. In addition to increasing the time that minors spend online, streak features often generate harmful social pressure and anxiety.[111] For Snapchat users, Snapstreaks are considered a measure of the strength of users' relationships—the longer a streak, the more valuable the relationship.[112] Teenagers regard Snapstreaks as proof of friendship, with those having the most and longest streaks considered the most popular.[113] Many teenagers invest significant effort and time every day to set up and maintain their streaks, sometimes even going so far as arranging to have others log in on their behalf to continue their streaks when they are themselves unable to.[114]

Quotes from teenagers interviewed by journalists about Snapstreaks illustrate the intense pressure and anxiety this feature generates to remain engaged on the service:

- "I hate streaks because it forces you to be on your phone every day. . . . Say you have a 100-day streak. There's a lot of obligation to continue. So if you lose your streak, it's like the world's over." – Sam, high school freshman[115]

- "A big part of it is social acceptance. . . . Having more streaks makes you feel more popular. . . . It shows [people's] social status to see how many streaks they have." – Will, 15[116]

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[111] Lori Janjigian, *What I Learned After Taking Over My 13-Year-Old Sister's Snapchat for Two Weeks*, Business Insider (Aug. 4, 2016, 11:53 AM), https://www.businessinsider.com/how-teens-are-using-snapchat-in-2016.

[112] *Id.*; Taylor Lorenz, *Teens Explain the World of Snapchat's Addictive Streaks, Where Friendships Live or Die*, Insider (Apr. 14, 2017, 1:58 PM), https://www.insider.com/teens-explain-snapchat-streaks-why-theyre-so-addictive-and-important-to-friendships-2017-4 (for example, Catie Clark, age 13, explains, "On Snapchat, streaks develop a level of friendship between people. The longer your snap streak is, the better friends you are."); Jacob Shamsian, *Teens Are Obsessed with this One Snapchat Score that Can Make or Break Friendships*, Insider, (Dec. 14, 2016, 4:51 PM), https://www.insider.com/teens-are-obsessed-with-snap-streaks-on-snapchat-2016-12 (Eve, a freshman at The New School, says, "I've heard people say things like 'oh yeah, I love her, we have a 200 day Snapchat streak.'").

[113] Lorenz, *supra* note 112.

[114] Janjigian, *supra* note 111; Lorenz, *supra* note 112.

[115] Shamsian, *supra* note 112.

[116] Lorenz, *supra* note 112.

- "Once you start a streak with someone, you've got to be committed to just send a quick message every day. If you stop it, it shows that you don't really care about that person." – Rafael, 14[117]

- "One of my friends actually called me while I was sleeping to make sure our streak would still be going. . . . He called me four times and woke me up to keep the streak alive." – Sam D., 15[118]

Games and services also use design features that leverage the minor's **parasocial relationships** with fictional characters or media personalities to increase online engagement.[119] A parasocial relationship (PSR) is a one-sided relationship between a human viewer and a media character.[120] In other words, PSR refers to emotions, including a feeling of friendship, that a viewer develops toward a media character.[121] Children and teenagers form parasocial relationships with fictional characters, influencers, and other media figures.[122] These bonds are influential: Evidence shows that young children are more likely to follow the instructions of media characters they have formed a relationship with, compared to unknown but similarly entertaining characters.[123]

Games and services manipulate users through parasocial relationships by, for example, shaming them into taking certain actions. These design features are widespread even in services used by really young children. A recent study of apps used by 3- to 5-year-olds found that 24.8% of the apps observed "used parasocial characters to prolong gameplay, either by pressuring the user to keep playing or by expressing disapproval if they stopped."[124]

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[117] *Id.*

[118] *Id.*

[119] Parasocial relationships are one-sided relationships that individuals develop with fictional characters or media personalities. *See* Hope Gillette, *What Are Parasocial Relationships*, PsychCentral (Feb. 15, 2022), https://psychcentral.com/health/parasocial-relationships.

[120] Amanda N. Tolbert & Kristin L. Drogos, *Tweens' Wishful Identification and Parasocial Relationships with YouTubers*, 10 Frontiers Psychol. 1, 4 (2019), https://doi.org/10.3389/fpsyg.2019.02781.

[121] *Id.*

[122] *Id.*

[123] Alexis R. Lauricella et al., *Toddlers' Learning from Socially Meaningful Video Characters*, 14 Media Psychol. 216, 226-227 (2011), https://doi.org/10.1080/15213269.2011.573465.

[124] Radesky et al., *supra* note 72, at 6.

A character in a Roblox game accuses the player of lying to get the player to join a group, which gives the player access to other parts of the game like battling other groups. The player may have to send a personal message to join the group.

In an ad for the well-known game "Candy Crush Saga" by King, a character will drown if players are unsuccessful or choose to ignore the advertisement. Failing to save her causes a pop-up to appear with characters looking sad and a button for users to download and play the game.

In "DragonCity" from Social Point, caged baby dragons appear with chat bubbles stating "Help…" When clicking the dragon, the user is asked if they want to save the crying dragon for a price of 50 diamonds – which would likely require an in-game purchase or extensive gameplay because diamonds are rarely awarded throughout the game (top and middle).

When the user refuses to purchase a limited time in-game purchase offer, a pop-up asks the user if they are sure, featuring sad baby dragons and a shocked God character (bottom).

Games and services also use design features that **incentivize reach to a larger audience**. These platforms encourage and even pressure minors to share information about themselves that they otherwise would not share, or to share their content with larger audiences than they originally intended. For example, Instagram frequently prompts passive users to create and share content, rather than merely viewing content created by others. When we created an Instagram account for a fictitious 14-year-old, we found that when we scrolled through Reels, we received periodic prompts to create our own content using filters and audio that are popular among other users.[125]
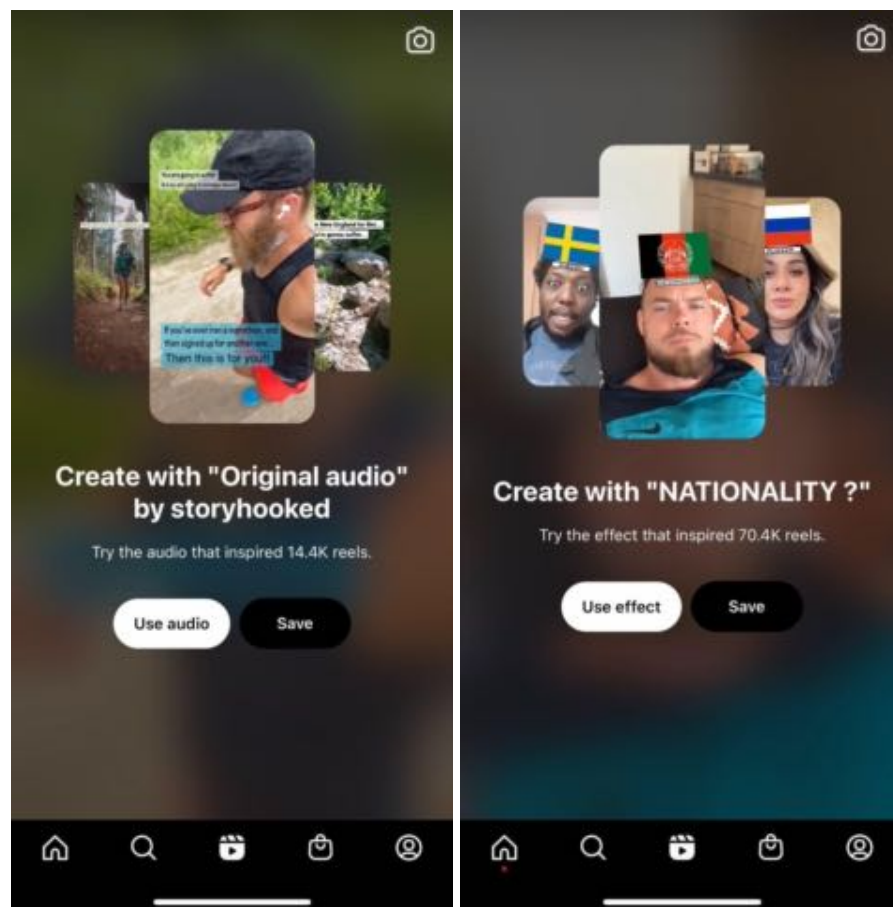
As our fictitious 14-year-old Instagram user scrolled through Reels on the app, she was prompted to create content using effects and audio that are popular among other users.[126]

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[125] We received these prompts on an Instagram account we created using the self-provided birthdate of August 17, 2008.
[126] *Id.*

In many instances, content sharing options default to sharing content publicly or to wider audiences not otherwise directly known to the minor. For example, "Live" videos on Instagram are made public by default. Users can only elect to hide Live videos from users they specify individually.
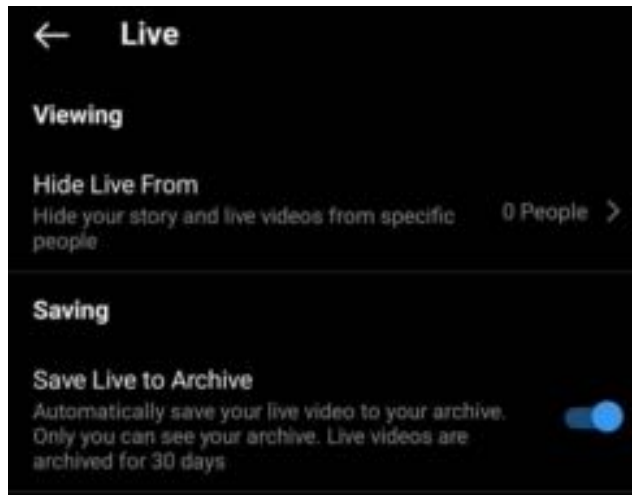
Instagram Live videos are available to everyone unless the user identifies specific individuals they wish to exclude. To block non-followers, the user would have to make their account private.

Similarly, apps and services also often encourage users to connect with additional accounts with which they have no actual connection. For example, TikTok presents users with suggested accounts to follow.

TikTok presents users with suggested accounts to follow.

Similarly, when Instagram users view content, the service suggests other accounts for the user to follow, including accounts followed by other people the user already follows.
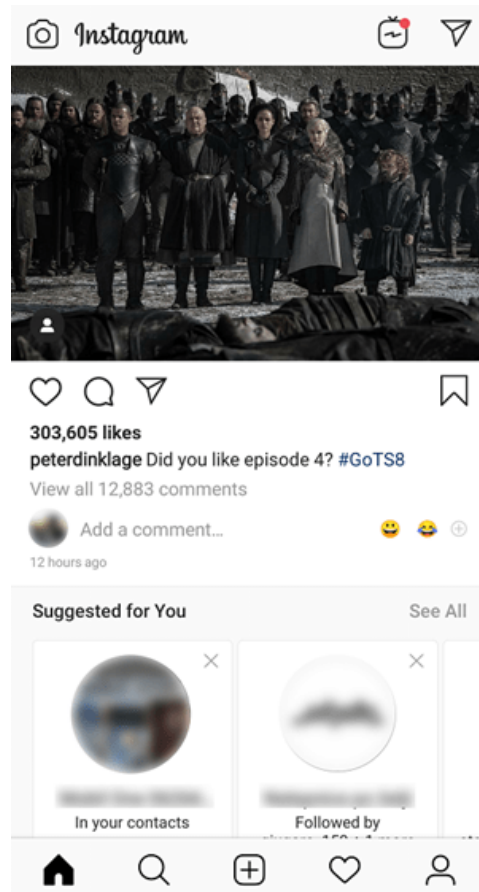
Instagram displays "Suggested for You" profiles
encouraging the user to follow other accounts.

Finally, games and services also frequently incentivize, encourage, and remind minors to invite their friends to join the platform.

In "Candy Crush Saga" from King, the game encourages users to invite friends in order to have more lives in the game.
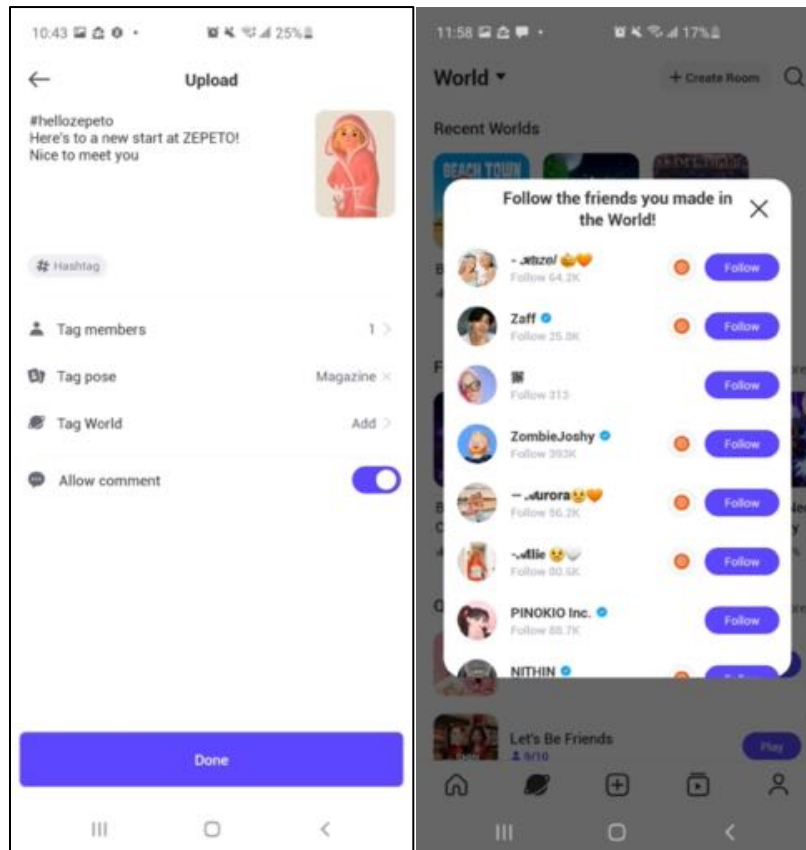
In "Zepeto" from Naver Z Corporation the user is directed to take a picture of their avatar in the tutorial and upload it to their feed where "allow comments" is turned on by default (left).

This incentivization serves to maintain the minor's connection to the app or service. The more friends a user has on a given platform, the more incentive the user has to spend time on that app or service, and the more activities they will engage in while there. Further, when a user utilizes an "invite friends" function, the platform often accesses the user's private contacts. Ultimately then, the minor, because they are incentivized to reach a larger audience, shares more data and information than they otherwise would have.

III. Design practices that maximize minors' online engagement are unfair under the FTC Act.

Petitioners urge the FTC to use its authority to promulgate regulations prohibiting use of the above-enumerated categories of design practices on minors because these practices are not only prevalent, but also categorically unfair when used on minors. A practice is unfair if it causes consumer injury that is substantial, that is not outweighed by any countervailing benefits to consumers or competition, and that cannot reasonably be avoided by consumers themselves.[127]

The design features discussed in this Petition are employed by apps and services in a variety of ways, substantially injuring minor users. As a result of optimization for engagement, minors currently suffer serious psychological and physical harms.

The serious harms caused by these practices, as described above, plainly outweigh any modest countervailing benefits they may have. The use of design features that maximize online engagement of minors benefits apps and services by increasing their revenue. But the cost to minors' wellbeing is extraordinarily high.

Neither minors nor their families can reasonably avoid the harms caused by the use of these design practices. Minors are not psychologically equipped to avoid the harms caused by these design practices. Parents and guardians cannot reasonably protect their kids from these harms, either.

A. These design practices do not offer countervailing benefits to minors or competition

When the FTC evaluates harmful practices under its authority to prohibit unfair practices, the FTC considers any benefits to consumers or competition as a result of the

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[127] Policy Statement on Unfairness, *supra* note 6.

practice, as well as costs of the proposed remedy, and weighs them against the injury to consumers.[128] The harms flowing from manipulative design features that maximize minors' engagement with online services far outweigh any benefits.

The main benefit of these design tactics is that they help apps and services generate more revenue, including by increasing in-app transactions, advertising revenue, and monetization of user data.[129] The longer users stay on a platform and the more they engage, the more data platforms and services, third party data collectors, and advertisers can collect about them. This increases the ability to more precisely and effectively target users with personalized ads and increase ad revenue. As an example, the more a user engages on a website, the more likely that site is to appear higher in search results for other users; Google uses "dwell time metric" as a way to measure the relevancy and quality of a website. This in turn increases the value of that online service.[130] Other engagement-optimizing features also endow financial benefit to platforms and services by facilitating in-app purchases. All of these features feed into benefits for the business model, not minors.

These practices do not benefit competition. On the contrary, the use of these unfair and deceptive design practices by some actors creates a "race to the bottom." Any company that does not deploy these unfair and deceptive practices on its users risks losing out on the financial benefits enjoyed by competitors who do manipulate their users.[131] Because these practices are designed to influence minors and their families without their notice, the market cannot correct this problem on its own—digital platforms hold far more information about the design and data collection practices associated with their products and services than any individual consumer.

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[128] *Id.*

[129] Some online businesses claim that by increasing the revenue generated by an app or service, designing to maximize engagement reduces out-of-pocket costs to users and allows many more people to access a broader range of content online. *See, e.g.*, ESA comments on "Bringing Dark Patterns to Light: An FTC Workshop" at 4, https://downloads.regulations.gov/FTC-2021-0019-0116/attachment_1.pdf.

[130] *See* Nick Chasinov, *User Engagement Is the New SEO: How to Boost Search Rank by Engaging Users,* Hubspot (Jan. 4, 2021), https://blog.hubspot.com/marketing/user-engagement-seo.

[131] Daniel Susser et al., *Online Manipulation: Hidden Influences in a Digital World*, 4 Georgetown Law Technology Review 1, 35 (2019); *see also* Ryan Calo, Digital Market Manipulation, 82 Geo. Wash. L. Rev. 995, 10001 (2014) (citing Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 Harv. L. Rev. 1420, 1564–65 (1999)).

A potential benefit for *minors* is that some of these design features may cause them to receive more relevant content or receive it more efficiently. Yet even if that is true, relevance and efficiency in content and advertising are being pushed on minors. Instead of minor users "pulling" the information—asking for and receiving the information they desire—they are supplied with content that is being "pushed" to them. These "pushes" expose minors to harmful content. For example, with autoplay, the next video is automatically started (pushed) onto the user. Autoplay and suggested video features have led, for example, to minors viewing videos encouraging suicide.[132] Ultimately, the substantial harms to minors from these design practices—discussed in detail above[133]—far outweigh any convenience benefit to minors or any monetary benefits to operators of apps, games, and other online services.

B. Minors lack the developmental maturity necessary to protect themselves from design features that maximize engagement.

The FTC's unfairness analysis also considers whether the injury is one that consumers themselves can reasonably avoid, because the FTC's unfairness authority is to be used "not to second-guess the wisdom of particular consumer decisions, but rather to halt some form of seller behavior that unreasonably creates or takes advantage of an obstacle to the free exercise of consumer decision making."[134] This part of the unfairness analysis is easily satisfied with respect to the use on minors of design features that maximize online engagement.

Minors cannot reasonably avoid the harms caused by design features that maximize online engagement because these features are designed expressly to exploit developmental vulnerabilities of immature brains. Design features that maximize engagement stem from the field of persuasive design (also called persuasive technology)—a developing field that focuses on influencing human behavior and actions through design techniques and psychology.[135] Tech companies regularly employ psychologists and behavioral science experts to assist software engineers in

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[132] Heilweil, *supra* note 2.
[133] *See* discussion *supra* Section I, "Design practices that maximize users' time and activities online cause substantial injury to minors."
[134] Policy Statement on Unfairness, *supra* note 6.
[135] *Our Letter to the APA*, Screen Time Action Network (Aug. 8, 2018), https://screentimenetwork.org/apa?eType=EmailBlastContent&eId=5026ccf8-74e2-4f10-bc0e-d83dc030c894.

designing code that maximizes user engagement online.[136] After all, the ecosystem of internet-based companies depends on user engagement—it drives the entire business model; the more users engage online, the more money the online operators can make.[137] Tristan Harris, Google's former design ethicist, stated that "[t]he job of these companies is to hook people, and they do that by hijacking our psychological vulnerabilities."[138] As one software engineer stated, "[e]ngagement *has* to be in the background of everything we do."[139]

Design features such as those discussed in this Petition are strategic choices selected and refined for their efficacy at altering user behavior. As a leading engineer of the infinite scroll feature said, "[b]ehind every screen on your phone, there are . . . literally a thousand engineers that have worked on [the design features] to try to make it maximally addicting."[140] Often, the efficacy of a design feature is evaluated prior to implementation in a process known as "A/B testing," in which different versions of a design interface are tested in operation on real users.[141] For example, in one famous example, Google A/B tested forty-one different shades of blue in its toolbar to see which version—with which particular shade of blue—drew the most clicks from real-world users.[142] Designers also can track how individual users behave and tweak the

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[136] Hartford & Stein, *supra* note 85 ("[T]he goal of many software developers has been to design products that generate habitual engagement and maximize use, drawing on techniques from applied psychology, neuroscience and behavioral economics."); Chavie Lieber, *Tech Companies Use "Persuasive Design" to Get Us Hooked: Psychologists Says It's Unethical*, Vox (Aug. 8, 2018, 2:30 PM), https://www.vox.com/2018/8/8/17664580/persuasive-technology-psychology.

[137] *See* Hartford & Stein, *supra* note 85.

[138] Victoria L. Dunckley, *How the Tech Industry Uses Psychology to Hook Children*, Psychol. Today (Oct. 24, 2018), https://www.psychologytoday.com/us/blog/mental-wealth/201810/how-the-tech-industry-uses-psychology-hook-children.

[139] Ari E. Waldman, Industry Unbound: The Inside Story of Privacy 20 (Cambridge University Press, 2021) (emphasis added).

[140] Hillary Andersson, *Social Media Apps Are 'Deliberately' Addictive to Users*, BBC News (July 4, 2018), https://www.bbc.com/news/technology-44640959.

[141] A/B testing, as known as split testing, refers to the practice of comparing two versions of something to figure out which performs better. This practice is commonly used on websites and apps to help maximize design features for engagement. *See* Amy Gallo, *A Refresher on A/B Testing*, Harv. Bus. Rev. (June 28, 2017), https://hbr.org/2017/06/a-refresher-on-ab-testing.

[142] Rags Srinivasan, *Testing 40 shades of blue – AB testing,* Iterative Path (Oct. 29, 2012), https://iterativepath.wordpress.com/2012/10/29/testing-40-shades-of-blue-ab-testing/.

user experience to get each user to engage more.[143] This kind of A/B testing can be run at scale and endlessly, meaning the experience is constantly being changed in order to maintain the business's desired action (optimizing engagement).[144]

Petitioners urge the FTC to take into account five specific developmental reasons that minors are incapable of successfully defending against these practices. First, minors lack mature executive function skills. Second, teens have a heightened tendency to engage in reward-seeking behavior relative to adults. Third, minors are more susceptible to peer pressure than their adult counterparts. Fourth, young children in particular lack the ability to understand persuasive intent or bias behind design features deployed for the purpose of influencing their behavior. And finally, young minors are more trusting than adults, rendering them more vulnerable to social manipulation.

1. Minors lack mature executive function skills necessary to reasonably avoid design features that maximize engagement

The first and perhaps most important developmental reason that minors cannot reasonably avoid the harms caused by design features that maximize for engagement is because they lack mature executive functioning.[145] Executive functioning is a set of related cognitive abilities critical to directing attention and behavior,[146] especially in an online environment. Because of its role in filtering distractions, prioritizing tasks, and setting goals, the area of the brain involved in executive functioning is commonly referred to as the brain's air traffic controller.[147] Cognitive abilities associated with

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[143] 5Rights Foundation, *Pathways: How Digital Design Puts Children at Risk* at 29 (July 2021), https://5rightsfoundation.com/uploads/Pathways-how-digital-design-puts-children-at-risk.pdf.

[144] *Id.*

[145] The development of executive functioning skills is tied to the maturation of the prefrontal cortex of the brain. This is the last area of the brain to develop. *See* Louis L. Moses & Dare A. Baldwin, *What Can the Study of Cognitive Development Reveal About Children's Ability to Appreciate and Cope with Advertising?*, 24 J. Pub. Pol'y & Mktg. 186, 194 (2005).

[146] Timothy D. Nelson et al., *Executive Control Throughout Elementary School: Factor Structure and Associations with Early Childhood Executive Control*, 58 Developmental Psych. 730, 730 (2022), https://pubmed.ncbi.nlm.nih.gov/35343719/; Philip D. Zelazo et al., *Executive Function: Implication for Education*, Nat'l Ctr. for Educ. and Res. at 1 (2017), https://ies.ed.gov/ncer/pubs/20172000/pdf/20172000.pdf.

[147] Center on the Developing Child, *Executive Function & Self-Regulation*, Harvard University, https://developingchild.harvard.edu/science/key-concepts/executive-function/; Leanda Barrington-Leach, *How Children Think and How Persuasive Design Tech Can and Does Exploit Their*

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executive functioning include impulse control, decision-making, attentional flexibility, planning, self-regulation, and resistance to interference.[148] These are not fully developed until adulthood.[149]

Design features that maximize online engagement target and manipulate areas of the brain involved in executive functioning. For example, infinite scroll and autoplay were designed to exploit users' inability to control their impulses.[150] These design features steer users endlessly through content without clicking. Even adults have a difficult time exiting these endless loops, and doing so requires a significant amount of self-control.[151]

When games and apps employ these design practices, minors lack the impulse control and self-regulation necessary to avoid harms. This is common sense for anyone who knows minors, and is implied in many policy discussions regarding optimization for engagement. For example, in 2021 the Subcommittee on Economic and Consumer Policy of the House of Representatives Oversight Committee raised concerns around autoplay in a letter to the YouTube CEO, because this design feature "places the onus on the child to stop their viewing activity, rather than providing a natural breaking point."[152] Since then, YouTube Kids has turned autoplay off by default,[153] signifying the importance of reining in the use of autoplay and similar design features against young users. But autoplay is still the default on YouTube's regular service, which most teenagers and many minors under the age of 13 use regularly.[154]

Immature executive functioning also has an enormous impact on minors' ability to process, cope with, and defend against advertising.[155] Due to immature executive

Vulnerabilities, LinkedIn (May 18, 2021), https://www.linkedin.com/pulse/how-children-think-persuasive-design-tech-can-does-barrington-leach/.

[148] Moses & Baldwin, *supra* note 145.

[149] Heather J. Ferguson et al., *The Developmental Trajectories of Executive Function from Adolescence to Old Age,* Sci. Rep. (2021), https://www.nature.com/articles/s41598-020-80866-1.pdf.

[150] Andersson, *supra* note 140.

[151] Hartford & Stein, *supra* note 85.

[152] Chairman Raja Krishnamoorthi, Subcommittee on Economic and Consumer Policy, Letter to YouTube CEO Susan Wojcicki (April 6, 2021), https://oversight.house.gov/sites/democrats.oversight.house.gov/files/2021-04-06.RK%20to%20Wojcicki-YouTube%20re%20YouTube%20Kids%20Content.pdf.

[153] *Overview of YouTube Kids Setting for Your Kid's Google*, Google, https://support.google.com/youtubekids/answer/7348846.

[154] Vogels et al., *supra* note 38.

[155] *See* Moses & Baldwin, *supra* note 145, at 195.

functioning, minors have a diminished ability to resist advertising, diminished ability to control their attention when they are distracted by advertising, and diminished ability to critically judge advertising relative to adults.[156] Similar vulnerabilities apply when minors engage with design features that maximize engagement. It is not reasonable to rely on companies to protect minors because the business and the engagement-maximizing features that serve it are predicated on manipulating minors.

2. Teens' heightened reward-seeking behavior makes them more vulnerable to design features that maximize for engagement

Another developmental reason that teens in particular cannot avoid harms caused by design features that maximize engagement is because adolescence is a period of heightened sensation- and reward-seeking behaviors.[157] Starting in early adolescence, there is a significant increase in brain activity related to the neurotransmitter dopamine.[158] This contributes to teens' tendency to seek out experiences motivated by rewarded stimuli,[159] as well as their experience of heightened arousal in response to rewards.[160] Teens' sensation- and reward-seeking behaviors encourage teens to strike out on their own at an age when they are growing more independent.[161]

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[156] *Id.*

[157] Adriana Galvan, *Adolescent Development of the Reward System*, 4 Frontiers Hum. Neuroscience 1, 1 (2010).

[158] Eveline A. Crone, *Executive Functions in Adolescence: Inferences from Brain and Behavior*, 12 Developmental Science 825, 829 (2009) ("Given the important role of dopamine in the brain's reward circuitry, this redistribution of dopamine receptors may increase reward-seeking behavior in puberty and therefore affect executive functions.").

[159] Ashley C. Parr et al., *Dopamine-Related Striatal Neurophysiology Is Associated with Specialization of Frontostriatal Reward Circuitry Through Adolescence*, 201 Progress in Neurobiology 1, 1 (2021), https://www.biorxiv.org/content/10.1101/2020.06.24.169847v1.full; Dustin Albert & Laurence Steinberg, *Judgment and Decision Making in Adolescence*, 21 J. Res. on Adolescence 211, 217-219 (2011) (demonstrating adolescent peaks in sensitivity to reward)("In sum, to the degree that adolescents are primed to seek out and respond to rewards, and at the same time possess immature self-regulatory skills, the influence of socioemotional stimuli is likely to loom large for their decision making").

[160] Anna C.K. van Duijvenvoorde et al., *What Motivates Adolescents? Neural Responses to Rewards and Their Influences on Adolescents' Risk Taking, Learning and Cognitive Control*, 70 Neuroscience Biobehavioral Rev. 135, 136 (2016), https://brainanddevelopment.nl/wp-content/uploads/2019/08/VanDuijvenvoorde_et_al_2016_Brain_Rewards_Adolescence.pdf.

[161] Parr et al., *supra* note 159 (stating that heightened sensation seeking and reward-seeking behaviors "are thought to be adaptive for . . . specializing the neurobiological pathways required to transition to independence in adulthood.").

Design features that maximize engagement—such as variable rewards, endless scroll, likes, and similar features—are intentionally and strategically designed to stimulate the brain's reward center.[162] Indeed, the psychological mechanism behind many persuasive technologies is the triggering of dopamine—which, as discussed above, is more active in teenagers.[163] For example, variable rewards, when given, generate higher levels of dopamine than predictable rewards.[164]

Further, adolescents are particularly susceptible to immediate rewards,[165] such as those granted instantly in a virtual environment. According to the American Psychological Association, the American Psychiatric Association, and the National Association of Social Workers, teens are "emotionally primed for spur-of-the-moment, reward- and sensation-seeking behavior without offsetting adult sensitivities to corresponding risks and longer-term consequences."[166] Neurobiological research

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[162] Richard Freed, *The Tech Industry's War on Kids: How Psychology is Being used as a Weapon Against Children*, Medium (Mar. 12, 2018), https://medium.com/@richardnfreed/the-tech-industrys-psychological-war-on-kids-c452870464ce ("Social networks and video games use the trusted brain-manipulation technique of variable reward (think slot machine). Users never know when they will get the next "like" or game reward, and it's delivered at the perfect time to foster maximal stimulation and keep them on the site); Dunckley, *supra* note 138; Erin Walsh & David Walsh, *Persuasive Design and Growing Brains: Why It Can Be So Hard to Unplug*, Psychol. Today (Oct. 24, 2019), https://www.psychologytoday.com/us/blog/smart-parenting-smarter-kids/201910/persuasive-design-and-growing-brains ("App designers know that if we receive rewards every time we do something that it has a diminishing impact over time. Instead, most apps are designed to deliver rewards using variable reinforcement."),

[163] Freed, *supra* note 162. *See* discussion *supra* Section III.B.2, "Teens' heightened reward-seeking behavior makes them more vulnerable to design features that maximize for engagement."

[164] Hartford & Stein, *supra* note 85, at 3 ("At the level of our neural reward system, an uncertain reward generates a more significant dopamine response than those generated by a reliable reward. On prominent internet platforms, sophisticated machine learning technologies now endeavor to randomize rewards for each user."); Edwards, *You're Addicted to Your Smartphone. This Company Thinks It Can Change That*, Time (Apr. 13, 2018, 6:32 AM), https://time.com/5237434/youre-addicted-to-your-smartphone-this-company-thinks-it-can-change-that/ ("The human brain produces more dopamine when it anticipates a reward but doesn't know when it will arrive).

[165] *See* Sihan Liu et al., *Core Symptoms and Symptom Relationship of Problematic Internet Use Across Early, Middle, and Late Adolescence: A Network Analysis*, 128 Computers Hum. Behav. 2 (2022) (explaining that early adolescents may become enthusiastic adopters of the Internet due to their sensation-seeking tendencies); Laurence Steinberg et al., *Age Differences in Future Orientation and Delay Discounting*, 80 Child Dev. 28, 39 (2009).

[166] Brief for the American Psychological Association, the American Psychiatric Association, and the National Association of Social Workers as Amici Curiae in Support of Petitioners, *Miller v. Alabama*, 132 S. Ct. 2455, 2464–65 (2012) (Nos. 10-9646, 10-9647).

indicates that adolescents' decision-making is biased toward their reward systems, rather than their cognitive control systems, as in adults.[167] This is, in part, because adolescents' cognitive control system is not mature enough to restrain impulses.[168]

Companies are well aware that the design features at issue in this Petition circumvent young people's psychological defenses. For example, in 2020 Meta's internal research reported that, "Thirty-two percent of teen girls said that when they felt bad about their bodies, Instagram made them feel worse." Further, "Teens regularly reported wanting to spend less time on Instagram, the presentations note, but lacked the self control to do so."[169] What this research shows is an awareness that the design of their app not only hurts teens, it supersedes the teens own desire to stop.

3. Minors are more susceptible to social manipulation and peer pressure applied by design features that maximize for online engagement

Another developmental reason that minors are unable to avoid harms caused by design features that maximize engagement is because they are very sensitive to social and peer pressure. Starting around age six, minors develop a need to fit in with their peers,[170] and starting around age ten they feel the need to be noticed and admired by others.[171] Being accepted evokes activation in the brain's reward center.[172] At the same time, the immature prefrontal cortex of minors' brains render them developmentally

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[167] Parr, *supra* note 159.

[168] Lauren E. Sherman et al., *Peer Influence Via Instagram: Effects on Brain and Behavior in Adolescence and Young Adulthood*, 89 Child Development 37, 38 (2017), https://srcd. onlinelibrary.wiley.com/doi/epdf/10.1111/cdev.12838.

[169] Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show*, W.S.J. (Sept. 14, 2021), https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739.

[170] In particular, between the ages of six and nine, children start to feel the need to fit in to peer social groups. *See* Jun Zhao et al., *'I Make Up a Silly Name': Understanding Children's Perception of Privacy Risks Online*, CHI Conference on Human Factors in Computing Systems Proceedings (May 2, 2019), https://doi.org/10.1145/3290605.3300336.

[171] Zara Abrams, *Why Young Brains Are Especially Vulnerable to Social Media*, APA (Feb. 3, 2022), https://www.apa.org/news/apa/2022/social-media-children-teens ("Starting around age 10, children's brains undergo a fundamental shift that spurs them to seek social rewards, including attention and approval from their peers.").

[172] Eveline Crone & Elly A. Konijn, *Media Use and Brain Development During Adolescence*, 9 Nature Comm. 1, 4 (2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5821838/.

unable to regulate emotional responses to social rewards.[173] This leaves minors relatively defenseless against the allure of social pressure.

Due to this heightened need for social rewards and inability to stand up to peer pressure, minors cannot avoid the harms caused by many of the design features discussed in this Petition, especially social manipulation. Design features that appear to confirm, validate, and quantify social relevance exploit minors' powerful need for social rewards.[174] Online operators are well aware of—and intentionally exploit—minors' developmental need for social rewards and vulnerability to social pressure.[175] As one neuroscientist explained, "Your kid is not weak-willed because he can't get off his phone . . . . Your kid's brain is being engineered to get him to stay on his phone."[176] Instead, the peer pressure is to maintain constant connection to the app, the business, or the service.

Research confirms that minors' susceptibility to peer influence and social rewards is indeed a strong reinforcer for social media use in particular.[177] For example, one study found that adolescents are particularly motivated by "likes" used by social media companies and this design feature promotes continued use of social media.[178] Adolescents are also more susceptible to peer evaluations, meaning the number of likes or comments affects adolescents more than adults.[179] As discussed, there are ways to turn off some of these features on users' own posts on some social media platforms, but such options are insufficient to prevent the harms caused by these design choices.

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[173] For example, adults "tend to have a fixed sense of self that relies less on feedback from peers" and "adults have a more mature prefrontal cortex, an area that can help regulate emotional responses to social rewards." Abrams, *supra* note 171.

[174] Crone & Konijn, *supra* note 172; Dar Meshi et al., *The Emerging Neuroscience of Social Media*, 19 Trends Cognitive Sci. 771, 774 (2015) ("Even minimalistic cues of social success such as these may activate the brain's reward system, and keep users coming back to Facebook for more.").

[175] Dunckley, *supra* note 138 ("Techniques used by video game and social media companies often exploit children's developmental vulnerabilities. For example, teens' highly elevated desire for social acceptance and fear of social rejection is a well-known aspect of their psychological development. Rather than handling this limitation with caution, proponents of behavioral design see it as a gold mine.").

[176] Edwards, *supra* note 164.

[177] Crone & Konijn, *supra* note 172.

[178] Sherman et al., *supra* note 168.

[179] Duijvenvoorde et al., *supra* note 160, at 139.

Further, as discussed in Section II.C above, powerful psychological forces compel minors to be active on social media services with their peers, even when it seems like it might be optional for them to do so.[180]

4. Minors lack the ability to understand persuasive intent or bias behind design features that maximize for engagement

Minors also cannot avoid the harms caused by design features discussed in this Petition because they cannot recognize and defend against the manipulative intent of these design features. The policy implications of minors' inability to defend against persuasion have been heavily discussed in the advertising context. Traditionally, researchers have found that minors cannot identify persuasive intent until the age of eight and bias until the age of twelve.[181]

As Petitioners have demonstrated in previous filings with the Commission, age stage guidelines are not reliable indicators of a minor's understanding of advertising on online platforms.[182] Under the Persuasion Knowledge Model, minors exhibit advertising literacy when they (1) recognize that something is an advertisement; (2) recognize that the ad is a persuasive attempt; and (3) activate their cognitive defenses (that is, resist the attempt to be manipulated).[183] Minors develop these skills at different ages, and further, even older teens who have developed persuasive knowledge struggle to activate cognitive defenses to digital ads.[184]

Beyond advertising, minors' vulnerability to persuasion also renders them unable to defend against manipulative design features. As discussed in Section III.B, above,[185] games, apps, and services conduct advanced research to build and deploy "persuasive design" features in order to maximize minors' online engagement.[186] These design features are designed to manipulate and persuade users to continue engagement

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[180] *See* discussion *supra* Section II.C, "Social manipulation."
[181] Dale Kunkel & Jessica Castonguay, *Children and Advertising: Content, Comprehension, and Consequences*, Handbook of Children and the Media 395, 405-07 (2011).
[182] Fairplay Comments on "Protecting Kids from Stealth Advertising in Digital Media" at 5-6, https://fairplayforkids.org/wp-content/uploads/2022/07/influencer-comments.pdf.
[183] *Id.* at 5-7.
[184] *Id.* at 10-13.
[185] *See supra* notes 140–144 and accompanying text.
[186] *See* Lieber, *supra* note 136.

online for as long as possible.[187] To the extent that minors are unable to defend against persuasive intent in advertising, they also are unable to defend against persuasive design. Indeed, in one recent study, minors who knew about the autoplay function failed to distinguish between distinctly new content and online video promotions in YouTube.[188] This resulted in them viewing upsetting content unasked yet lumping it under the natural experience of autoplay.[189]

5. Young children are more trusting than adults, which leaves them vulnerable to social manipulation techniques applied by design features that maximize for online engagement

One final developmental reason that young children in particular are unable to avoid harms caused by design features that maximize for engagement is because they are trusting, especially of familiar characters. Children are more trusting than adults and they often form deep attachments to media characters, viewing those characters as friends.[190] Research shows that children pay more attention to and learn better from familiar characters than from unfamiliar characters.[191]

Design features that maximize for online engagement take advantage of this trust when they use familiar characters to draw users in. This manipulation begins early: a study of apps used by 3- to 5-year-old children found that parasocial relationship pressure was used to prolong gameplay or promote purchases in approximately one-fourth and one-fifth of the apps studied, respectively.[192] Video platforms can exploit parasocial relationships by autoplaying videos from characters and media figures that minors are familiar with to keep them engaged online. In one study, a ten-year-old girl

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[187] Aditya K. Purohit et al., D*esigning for Digital Detox: Making Social Media Less Addictive with Digital Nudges*, CHI Conference on Human Factors in Computing Systems Extended Abstracts (April 2020), https://dl.acm.org/doi/10.1145/3334480.3382810; Edwards, *supra* note 164.

[188] Zhao et al., *supra* note 170.

[189] *Id.*

[190] Bradley J. Bond & Sandra L. Calvert, *A Model and Measure of US Parents' Perceptions of Young Children's Parasocial Relationships*, 8 J. Child. Media 286 (2014), https://doi.org/10.1080/17482798.2014.890948.

[191] Marisa Meyer et al., *Advertising in Young Children's Apps: A Content Analysis*, 40 J. Dev. Behav. Pediatr. 32 (2019), https://pubmed.ncbi.nlm.nih.gov/30371646/; Kaitlin L. Brunick et al., *Children's Future Parasocial Relationships with Media Characters: The Age of Intelligent Characters*, 10 J. Child Media 181 (2016), https://www.tandfonline.com/doi/abs/10.1080/17482798.2015.1127839.

[192] Radesky et al., *supra* note 72, at 6.

stated that she was okay with video recommendations on autoplay because the platform recommended a video from one of her favorite YouTubers.[193] Further, studies show that young children are not likely to greet trusted characters with skepticism even if they are being used to sell products or push more content.[194]

C. Parents and guardians are not able to protect minors from online injury

Not only are minors unable to reasonably avoid the harms caused by optimization for engagement, but parents and guardians are not able to protect their children from these harms, either. There are several reasons for this.

The first and most important reason is that it is not logistically feasible for parents to directly supervise every moment of their children's internet use. In 2021, 8- to 12-year-olds spent more than 5.5 hours viewing entertainment screen media each day.[195] This does not include time using screens for school or homework,[196] though minors often are required by school to spend time online—including during hours when parents are not with them—and increasingly are given or required to have their own devices for educational purposes.[197] Parents struggle to find time to monitor their children's online activities, and that is especially the case for single parents and parents who work multiple jobs.[198] In addition, compared to televisions, many internet-enabled devices are small personal devices that can be used quietly or with headphones, making it difficult for parents to see or listen in on their children's online activity and content casually and from a distance, without hovering.

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[193] Zhao et al., *supra* note 170.

[194] Walsh & Walsh, *supra* note 162.

[195] Victoria Rideout & Michael B. Robb, *The Common Sense Census: Media Use by Kids Age Zero to Eight, 2020*, Common Sense Media, 7 (2020), https://www.commonsensemedia.org/sites/default/files/research/report/2020_zero_to_eight_census_final_web.pdf.

[196] *Id.*

[197] *Common Sense Files Comments to Federal Trade Commission on Cross-Device Tracking of Children and Teens* (press release), Common Sense Media (Dec. 17, 2015), https://www.commonsensemedia.org/press-releases/common-sense-files-comments-to-federal-trade-commission-on-cross-device-tracking-of-children-and-teens (In the context of educational technology used in schools, "a student could find herself on multiple Internet-connected devices a day as a precondition of receiving a public education.").

[198] *See generally* Pooja Tandon et al., *Home Environment Relationships with Children's Physical Activity, Sedentary Time, and Screen Time by Socioeconomic Status*, 9 Int'l J. Behav. Nutrition Physical Activity 7 (2012) (discussing how parents in low socioeconomic status families may lack the time to supervise their children in the neighborhood).

When parents attempt to limit or regulate their children's online activity in the face of these intentionally manipulative design features, they struggle to do so. Indeed, management of minors' online activities is a major source of conflict within families. Research shows that starting in the toddler years, the engagement-promoting features of tablet apps might result in behavioral dysregulation after tablet play ends, as compared with the easier transition from engagement with a printed book.[199] A 2016 report by Common Sense Media found that 70% of American teenagers between ages 12 and 18 fight with their parents about their devices—thirty-two percent on a daily basis.[200] Further, minors are using many different platforms and services; expecting parents to understand, monitor, and adjust settings across multiple platforms is not realistic.

Parents sometimes attempt to protect their children from online harms by using parental controls or other parent-oriented settings, but may find they cannot, due to confusing and misleading defaults and setting choices. For example, Hulu, Netflix, YouTube, and Amazon Prime all permit users to disable autoplay, but enable autoplay by default and may make it difficult to disable. Consider Netflix, which does not allow users to turn autoplay off in the Netflix mobile app—or even inform users anywhere within the app that autoplay can be disabled. Autoplay can be disabled, but to do so, a parent must log in to their account through a web browser and enter the settings panel from there. Further, these solutions are specific to the individual platform; it requires tremendous time and energy for a parent or guardian to go through each and every platform a minor may use. Again, that is an unrealistic and unreasonable expectation of parents.

In addition, many of the design features addressed in this Petition actively undermine parents' attempts to select content for their children, thus frustrating parents' ability to avoid harms caused by inappropriate content. As discussed above, many of these design features harm minors by surfacing harmful content. Even when parents attempt to hand-select content themselves, as they may do for young children, design features such as autoplay and endless scroll automatically select and play or

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[199] Tiffany G. Munzer et al., *Tablets, Toddlers and Tantrums: The Immediate Effects of Tablet Device Play*, 110 Acta Paediatrica 255, 255-56 (2020), https://europepmc.org/article/pmc/pmc7749045.
[200] *Technology Addiction: Concern, Controversy and Finding a Balance*, Common Sense Media, 3 (2016), https://www.commonsensemedia.org/sites/default/files/research/report/csm_2016_technology_addiction_research_brief_0.pdf.

suggest subsequent content that the parent did *not* choose. According to research conducted by Common Sense Media examining the media habits of 5- to 8-year-olds, "among the 95% in this age group who watch online videos, the children themselves are most likely to select what to watch (rather than the parent), either through their own searching, autoplay, or 'suggested' videos on the platform or from channels the child follows."[201] These design choices deliberately remove parents from influencing or stopping undesired content from reaching their child.

Requested Action

To address the prevalent unfair and deceptive practices described above, Petitioners urge the FTC to adopt a rule prohibiting these practices. Section 18(a)(1)(B) of the FTC Act (15 U.S.C. 57a(1)(B)) gives the FTC authority to prescribe rules that "define with specificity . . . unfair or deceptive acts or practices in or affecting commerce."[202] As Petitioners have explained above, it is within the FTC's authority to prohibit use of the design features described in this Petition because these practices are prevalent and categorically unfair when used on minors.

The FTC must act to stop the use of these harmful practices on minors. Engagement optimization is lucrative, because it drives up revenue earned through multiple avenues. Without FTC intervention, these practices will continue and likely will intensify, becoming only more tailored to an individual.[203] As noted in the Petition above, businesses are incentivized to focus on targeting minors for profit, not for protection due to the fact that advertising targeted at them and data being collected from them is profitable.

The Commission's trade regulation rulemaking authority is the agency's best tool to provide relief from the harms manipulative design wrecks on kids and teens.[204] The harms caused by these practices cannot be sufficiently mitigated by enforcement of the COPPA Rule, individual Section 5 enforcement actions, and FTC guidance alone. First, COPPA's scope is limited to the collection, storage, and use of data collected from

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[201] Rideout & Robb, *supra* note 195.
[202] 15 U.S.C. § 57a(a)(1)(B); 16 CFR §1.8(a), https://www.govinfo.gov/link/uscode/15/57a.
[203] Lauren E. Willis, *Deception by Design*, Loyola Law School, Los Angeles Legal Studies Research Paper No. 2020-25, 34 Harv. J. L. Tech. 115 (January 10, 2022), https://ssrn.com/abstract= 3694575.
[204] *See* 15 U.S.C. § 57a(a)(1)(B); 16 C.F.R. § 1.8(a).

minors. It is not concerned with design practices that abuse the unique psychological vulnerabilities of kids and teens. Second, individual enforcement actions may help address the worst actors within industries, but the use of deeply harmful design practices on minors is so prevalent and systemic that individual enforcements in this area will always be insufficient. A case-by-case approach would also not provide sufficient clarity to companies about which types of design practices are lawful and which are not. Third, although the FTC has issued much beneficial guidance on how parents can educate their kids about potential harms faced online,[205] this guidance does not speak to unique psychological and physical risks to young people when platforms cause extended online engagement. And finally, guidance does not adequately incentivize changes in harmful behavior on the part of digital designers.

In light of the foregoing, the Commission should adopt a rule prohibiting design features that maximize minors' engagement with online platforms. In such a rule, the design practices outlined above should be categorically prohibited. We urge the FTC to adopt the following:

Prohibited Practices.

Unfair or deceptive acts or practices. In delivering an online website or service to a minor, it is an unfair or deceptive practice to employ certain features designed for the purpose of maximizing users':

(a) time spent on the website or service, including as measured by duration or frequency, or
(b) activities performed on the website or service, including viewing content, posting content, playing games, making purchases, sharing private information, connecting with new people or products, or viewing ads.

Prohibited practices include:

(a) **Low-Friction Variable Rewards.**
   (i)   Rewarding content or virtual items offered by a website or service that:
        (1) Are awarded to users for mere scrolling, tapping, and/or opening or logging into the website or service;
        (2) Vary unpredictably in type, amount, and/or timing; and

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[205] *Protecting Kids Online,* Federal Trade Commission Consumer Advice, https://consumer.ftc.gov/identity-theft-and-online-security/protecting-kids-online.

(3) Generally increase as a minor spends more time on the website or service, or visits it more frequently.

   (ii)   Examples of prohibited variable reward design features include:

       (1) **Endless Scroll and Autoplay with Variable Content.** Variable content loaded continuously without interruptions or pauses.

       (2) **Variable Reward Notifications and Nudges.** Notifications and nudges that do not originate from a minor's individual connections or preferences on an online website or service that encourage minors to return to the online website or service at variable intervals to receive a reward.

(b) **Navigation Manipulation.**

   (i)   Design features that:

       (1) Make it difficult for a minor to navigate out of a content stream or exit an online website or service; or

       (2) Encourage seamless and continuous use of a website or service without any stopping cue(s);

       (3) Except when the primary function is to instruct minors on the functionality of, or offer narrative information central to, the website or service.

   (ii)   Examples of prohibited navigation manipulation design features include:

       (1) **Difficult Navigability.** Features that make it difficult for minors to maneuver out of a content stream or back to the home screen without viewing additional content.

       (2) **Autoplay.** Functionality that makes the next piece of content play automatically, without requiring an action from the minor.

       (3) **Strategically Timed Advertisements.** Advertisements that pop up when a minor attempts to navigate to another part of the website or online service, such as back to the main menu, on to another round of a game, or out of the website or online service altogether.

(c) **Social Manipulation.**

   (i)   Design features that:

       (1) Leverage a minor's desire for social relationships to encourage greater time spent and/or activities performed on the website or service.

   (ii)   Examples of prohibited social manipulation design features include:

       (1) **Quantified Popularity of a Minor's Account or Content.** Displaying a quantified tally of the number of connections or

interactions for a minor's account or piece of content, such as followers, views, likes, dislikes, or comments.

(2) **Named Popularity.** Displaying the names, usernames, or other known identifiers of specific other users who have interacted with a particular piece of content, such as by viewing, liking or disliking, or commenting on it.

(3) **Interaction Streaks.** Features that quantify interactions between users, creating pressure for interactions to continue so that the streak value continues to increase.

(4) **Parasocial Relationship Pressure.** The use of an artificial or animated character or a popular influencer on a website or service to pressure or shame a minor into taking a certain action, such as when a game character uses insulting language or pressure to manipulate the minor into continuing to play a game, coming back at another time, making a purchase, or sharing personal information.

(5) **Incentivized Reach to Larger Audience.** Prompting a minor to make their account visible to, or otherwise share content with, users with whom they are not already connected, or defaulting to these settings.

Conclusion

For the foregoing reasons, Petitioners respectfully urge the FTC to promulgate a rule prohibiting prevalent design features that maximize minors' engagement with online platforms and that are categorically unfair.

By: Respectfully submitted,

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November 17, 2022

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* This request for investigation was drafted with considerable assistance from student attorneys Luke Evans, Adwait Jawale, Caroline Kraczon, Katarina Mattmuller, Eve Maynard, John Eagle Miles, Philip Reisen, Annie Scantling, and Quinten Stewart, and teaching fellow Victoria Tang in the Communications & Technology Law Clinic at Georgetown Law.

Appendix: Unfair Design Practices Exhibits

Table of Contents

A. Introduction & Methodology

This appendix comprises screenshots from games and social media applications found on the Google Play Store informally surveyed by Petitioners.[1] Because of the immense digital footprint left by only a handful of social media apps (such as Facebook, Snapchat, TikTok, etc.) in comparison to the plethora of gaming apps on the market, the examples within this appendix come mostly from gaming apps rather than social media apps. We chose social media apps based on research demonstrating their popularity amongst teenagers, particularly Facebook, Snapchat, Instagram, TikTok, and YouTube.[2]

These games were informally reviewed by two students in the Georgetown Communications & Technology Law Clinic who chose games based on a variety of sources to reduce bias, such as the most downloaded and recommended games on the Google Play Store, online ranked lists, word of mouth, and a given game's artwork or appearance. The students played these games throughout October of 2022. A full list of the games played can be found here.

Three factors were considered in choosing the games listed here. First, we chose games that had been downloaded at least over 1 million times according to the Google Play Store, with the majority (58%) being downloaded over 50 million times.[3] Second, we considered the Entertainment Software Rating Board (ESRB) rating given for each game and only considered games that were rated for Teens or lower, with the vast majority of games we chose to play (68%) being rated for Everyone. Finally, we aimed to include games that could clearly be enticing or appealing for children to play based on their art styles and appearance, as well as only choosing games that were free-to-play.

We played 60 games from the Google Play Store. Of those 60, we found 36 (60%) that had manipulative design practices meeting the definitions set forth in the Petition for Rulemaking that this appendix accompanies. Within those 36 games, we found 15 examples of low-friction variable rewards (25%), 25 examples of navigation

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[1] With the exception of YovoGame's *Doctor for animals*, all games played were also available on the Apple App Store.

[2] *See, e.g.,* Emily A. Vogels et al., *Teens, Social Media and Technology 2022,* Pew Research Center (Aug. 10, 2022), https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/.

[3] The Apple App Store does not disclose download numbers for its apps, hence these numbers in reality are likely much larger.

manipulation (42%), and 18 examples of social manipulation (30%). We believe that these statistics and examples, along with the arguments presented in our Petition, "indicate[] a widespread pattern of unfair or deceptive acts or practices" within the meaning of 15 U.S.C. § 57a(b)(3)(B), and therefore establish prevalence.

Categories:	Count:	Percentage:
Total Number of Games Played:	60	N/A
Number of Games Found with Deceptive Practices:	36	60%
Number of Low-Friction Variable Reward Examples:	15	25%
Number of Navigation Manipulation Examples:	25	42%
Number of Social Manipulation Examples:	18	30%

Game Ratings:	Count out of 60 Games:	Percentage:
Number of Total Games Rated E:	41	68%
Number of Total Games Rated E 10+:	11	18%
Number of Total Games Rated T:	8	13%

Number of Total Games Downloaded:	Count out of 60 Games:	Percentage:
1 Million+	60	100%
5 Million+	55	92%
10 Million+	51	85%
50 Million+	35	58%
100 Million+	23	38%
500 Million+	3	5%
1 Billion+	2	3%

B. Low Friction Variable Rewards

1. <u>Variable Rewards in Games</u>

In the popular game "SpongeBob: Krusty Cook-Off" from Tilting Point LLC, the player is periodically given rewards chests containing a variety of in-game items.

In the popular game "Cat Runner: Decorate Home" from Ivy, the player can receive Game Boxes and Free Boxes that offer variable rewards. Sometimes Game Boxes are offered for free, otherwise they cost 500 gold. While some prizes are rare, the reward is more likely to be worth less than the cost of the box, as shown above.
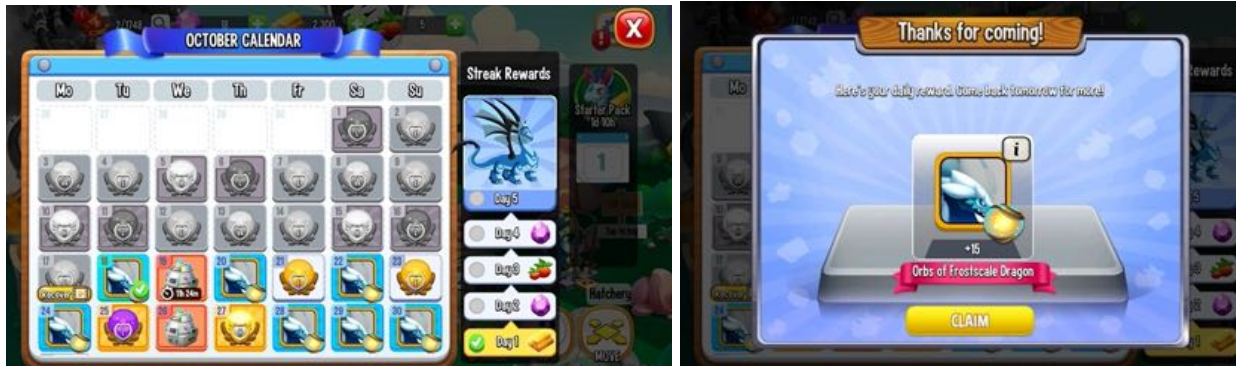
In "DragonCity" from Social Point, the player is prompted to receive a daily variable reward when logging in. Although the calendar displays the item category, the specific quantity is kept unknown. (see top images). There is also a "Lucky Lair" variable reward game that allows the user to potentially earn rare prizes and treasure chests, leading to further low-friction variable rewards (see bottom images).

In "Go! Dolliz: Dress Up" from Dramaton, the user may claim daily rewards, some of which are unpredictable, such as the rewards displayed above for day 2 and day 5.

In "Harry Potter: Hogwarts Mystery" from Jam City, Inc., the player is awarded chocolate frog cards that vary in rarity at random intervals throughout the game.

In the popular game, "Hello Kitty Nail Salon" from Budge Studios, the player is periodically presented with gift boxes that, when clicked upon, award new surprise items.

In "Hello Kitty World 2: Sanrio Kaw" from Access Bright Japan, Inc., the user is able to receive daily gift boxes (top) and earn points via gameplay to spin a roulette wheel which gives variable rewards (bottom).

In "Love Nikki: Dress Up Queen" from Elex, the player can win daily variable rewards via the Room of Mystery: Pavilion of Mystery. The player is instructed to periodically do so in the game's tutorial (see above).

In "Love Nikki: Dress Up Queen" from Elex, the player can also draw variable prizes in Dream Island, with higher chances of winning for each consecutive draw.

Finally, "Love Nikki: Dress Up Queen" from Elex has a lucky draw box that offers daily variable-rewards. The player may receive double rewards after accruing 100 "luck" points by logging in daily. Failure to log in results in a loss of 50 luck points.

In the popular game, "My Talking Angela Two" from Outfit7 Limited, the player can spin a wheel every day to receive a free random reward.

In the popular game, "My Talking Tom" from Outfit7 Limited, the player can spin a wheel every day to receive a free random reward. The player can receive additional spins if they watch an advertisement.

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In "PK XD: Fun, Friends, and Games" from Afterverse Games, the player receives a daily prize. After claiming prizes for 5 consecutive days, the player may claim a random surprise chest.

In "My Tamagotchi Forever" from BANDAI NAMCO Entertainment Europe, the player can spin a wheel offering free variable rewards if they watch an advertisement. After the first spin, the player is offered to watch another video for a second spin.
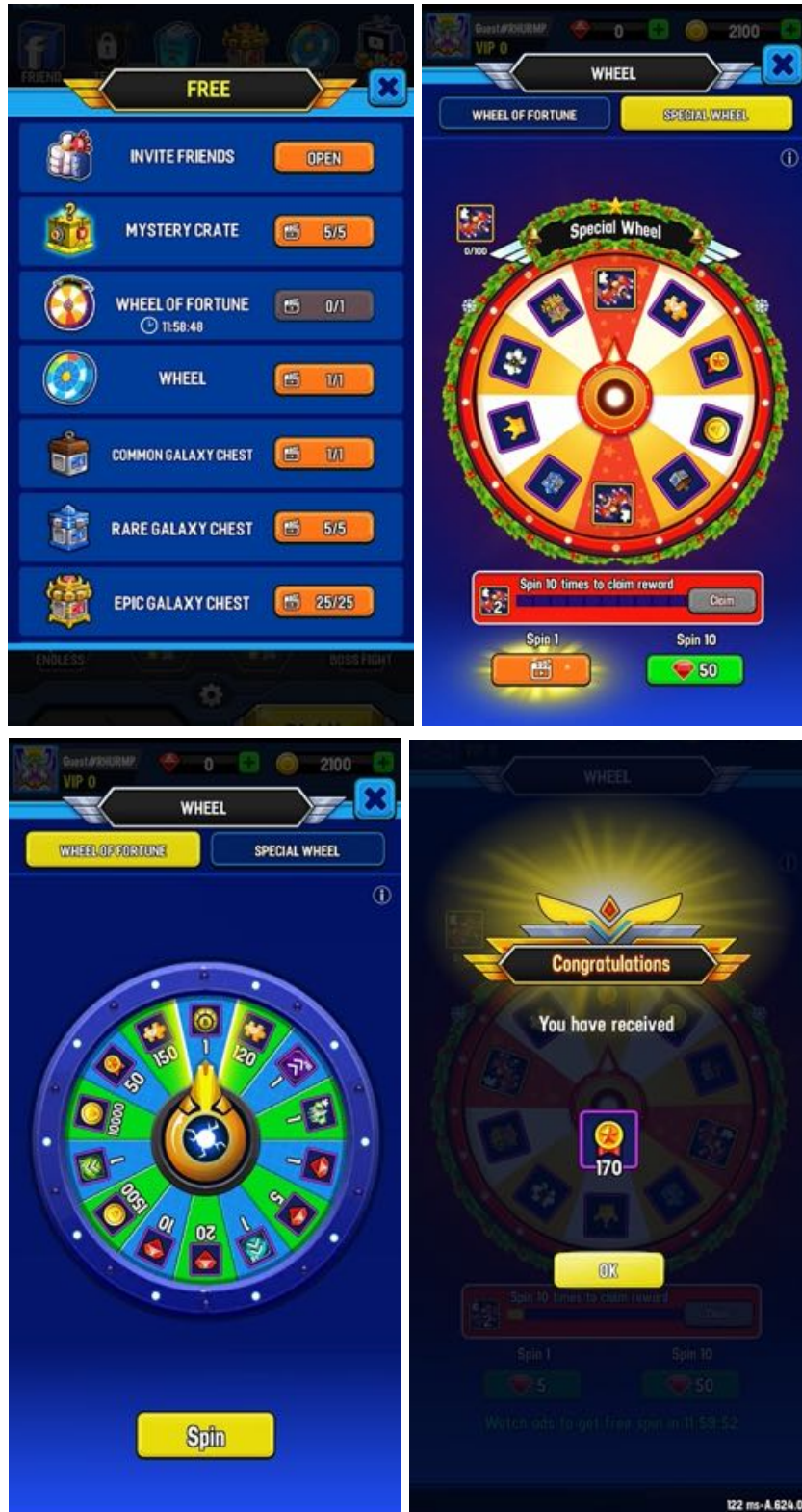
In "Space Shooter" from ONESOFT GLOBAL PTE LTD, the player can receive free variable rewards in numerous ways as displayed under the "FREE" tab (top left), such as the special wheel (bottom left) and wheel of fortune (top and bottom right).

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"Star Wars: Galaxy of Heroes" from Electronic Arts features bronzium data cards that offer the player variable rewards.
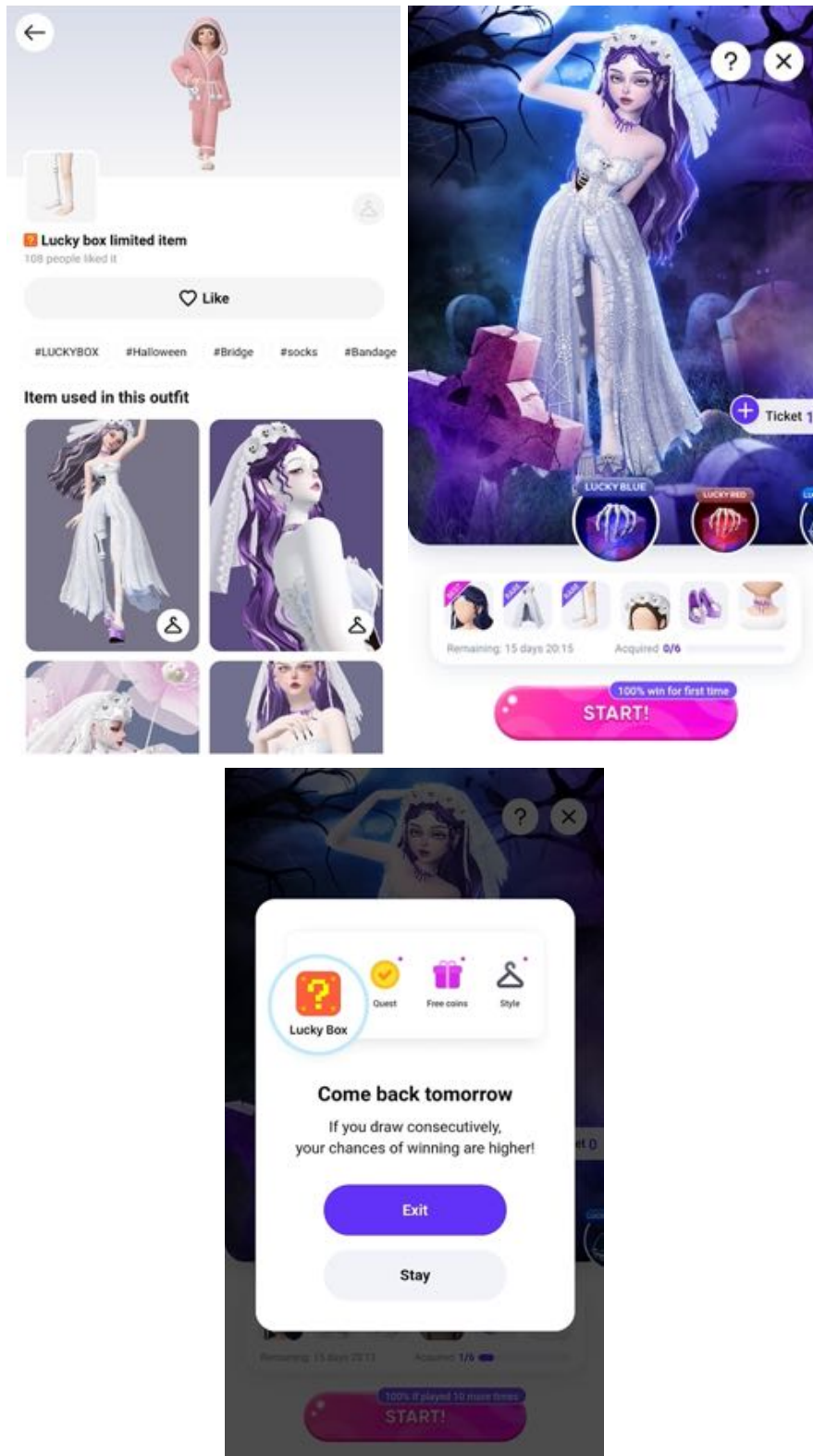
In "Zepeto" from Naver Z Corporation, the user is offered to draw a lucky box to win variable rewards, including components of a limited edition outfit. The player's chances of winning outfit items are higher when they draw consecutively.

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In "Talking Tom: Gold Run" from Outfit7Limited, the player frequently encounters vaults in game-play which offer variable rewards.

In "Lords Mobile" from I Got Games (IGG), the game has daily login variable gifts and interest rewards for players to obtain.

In "Squishy Magic" from Dramaton, playing through levels far enough will unlock variable rewards. Earning stars from doing orders increases the percentage of the random gift; hitting 100% unlocks it.

2. <u>Nudges</u>
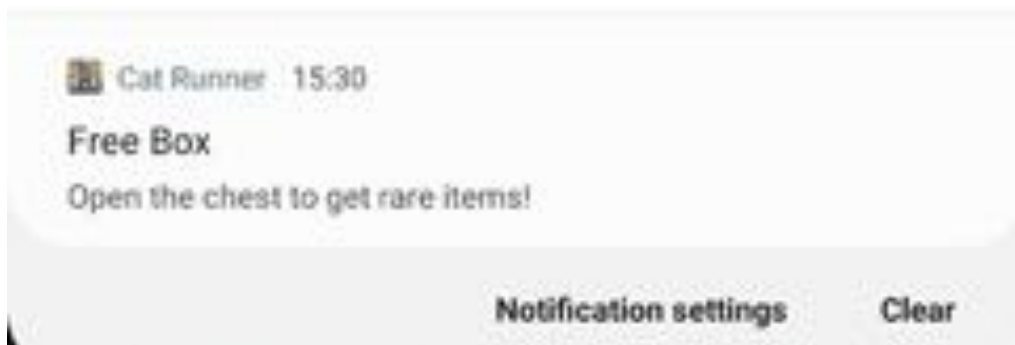
In the popular game, "Cat Runner: Decorate Home" from Ivy, the player periodically receives phone notifications to return to the app and open a free box with variable rewards.

In the popular game, "PK XD: Fun, Friends, and Games" from Afterverse Games, the player receives a daily phone notification to return to the app and receive free coins that vary in quantity
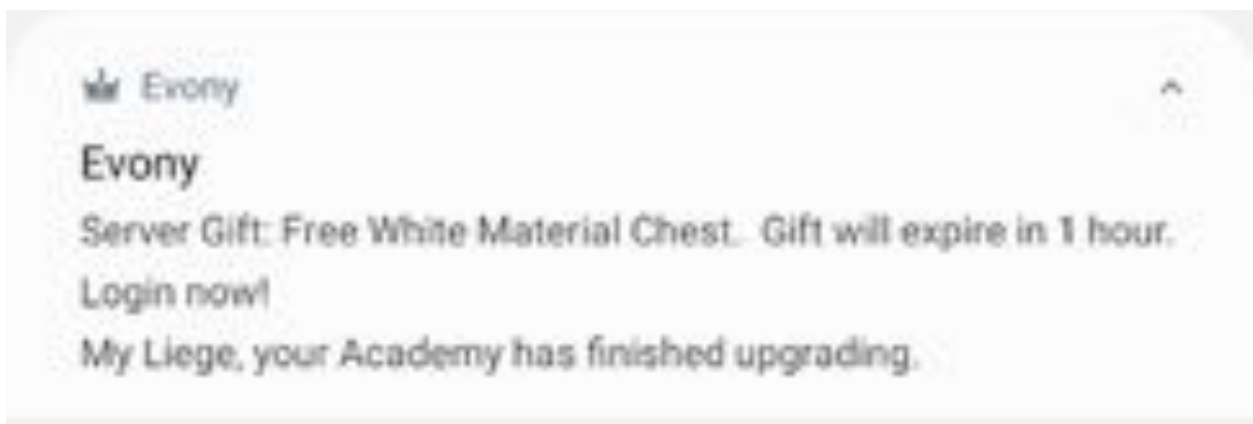
In the popular game, "Evony: The King's Return" from TG Inc., the player frequently receives phone notifications about free chests containing variable rewards, prompting the user to return to the game before they expire.
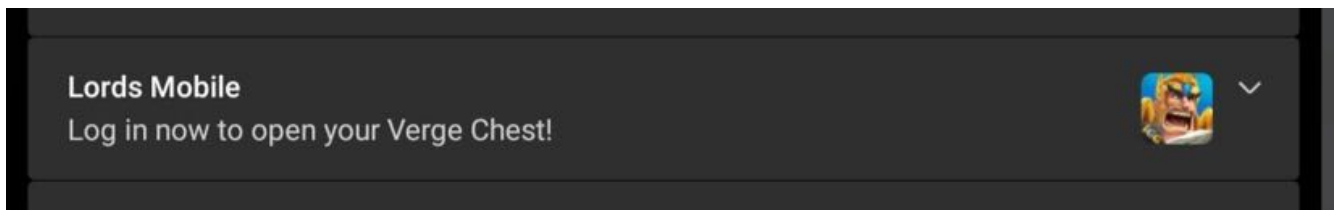
In "Lords Mobile" from I Got Games (IGG), periodic notifications are given to open 'Verge Chests' to unlock free variable rewards. See Appendix for more examples of Low-Friction Variable Rewards.

C. Navigation Manipulation

1. <u>Difficult Navigability</u>

*An ad for the game "Township" from Playrix is itself playable
and takes the user directly to the download screen for the app.*

In "Project Makeover" from Magic Tavern, Inc., an advertisement in the game encouraging you to play a level has no exit option. Players must choose to play a level to proceed.

In "animal restaurant" from DH-Publisher, the game continuously plays in the background as users navigate the menus. Additionally, if the player ceases to tap the screen for approximately 10 seconds, a paw icon and floating text on screen encourages players to tap the "Flyer Promo" button in the bottom-right corner in order to have more customers arrive in the restaurant to interact with.

In "Chibi Island" from Nexters Global, an in-game offer can be seen with an obscured exit button in the top-right corner.

In "Subway Surfers" from SYBO Games, a player needs to only tap anywhere on screen to start a game. This makes navigating the menu difficult as mistapping can cause the game to immediately start as occurred during Petitioner's research.

In "Cat Runner: Decorate Home" from Ivy, advertisements pop-up on the top of the screen during gameplay, typically involving fast food, without any exit button or indication that it is an advertisement.

In "Harry Potter: Hogwarts Mystery" from Jam City, Inc., pop-up advertisements for in-game purchases appear frequently throughout gameplay. As shown above, these pop-ups have no visible exit button and force the user to click "Show Me!" before they may navigate back to gameplay.

Appendix page 22
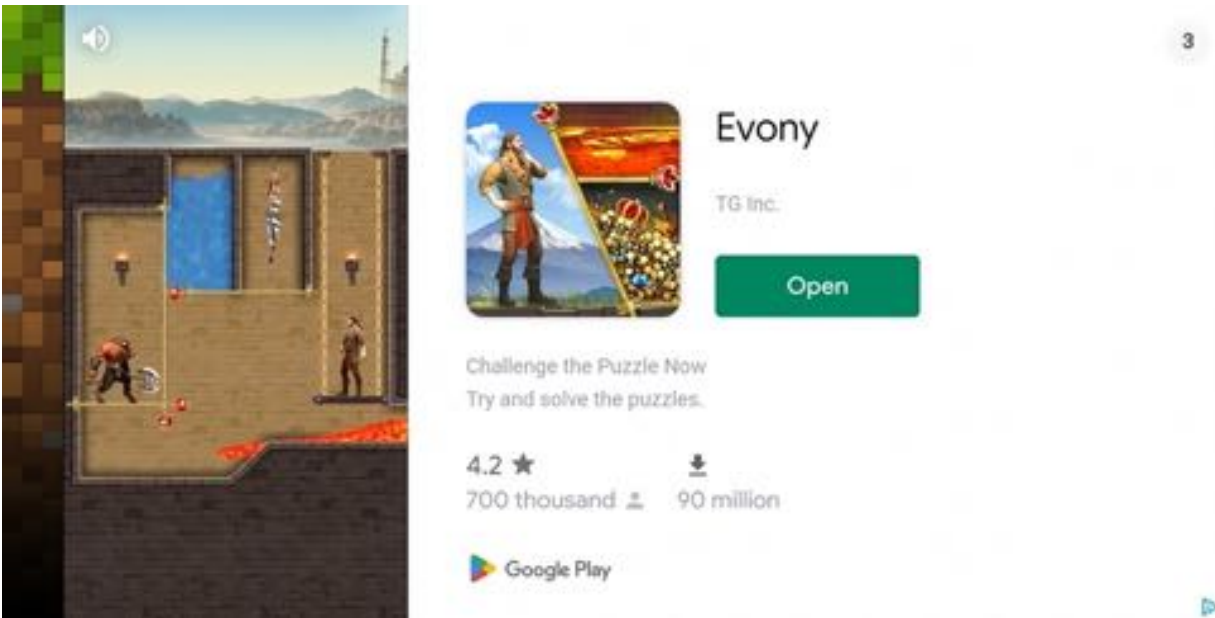
In "Craft School Monster Class" from ABI Global LTD, the player, after completing a level, is presented with a sparkling chest offering triple rewards (top). If the player clicks this chest, they are redirected to an advertisement that cannot be closed until the timer expires (bottom) thereby manipulating the player into unintentionally navigating away from gameplay to receive triple rewards.
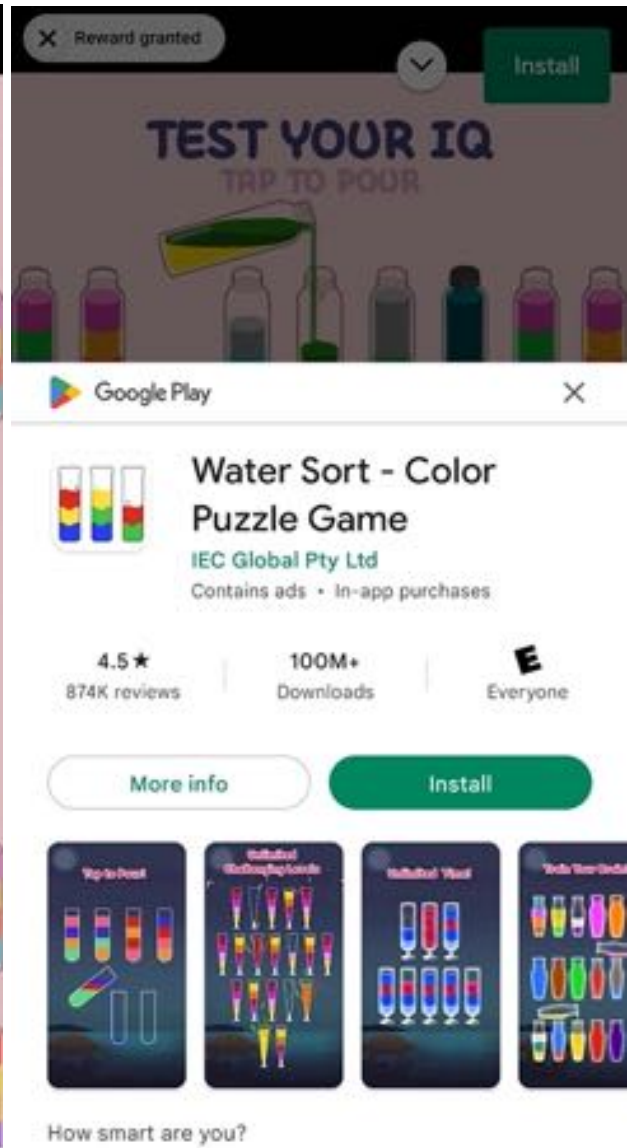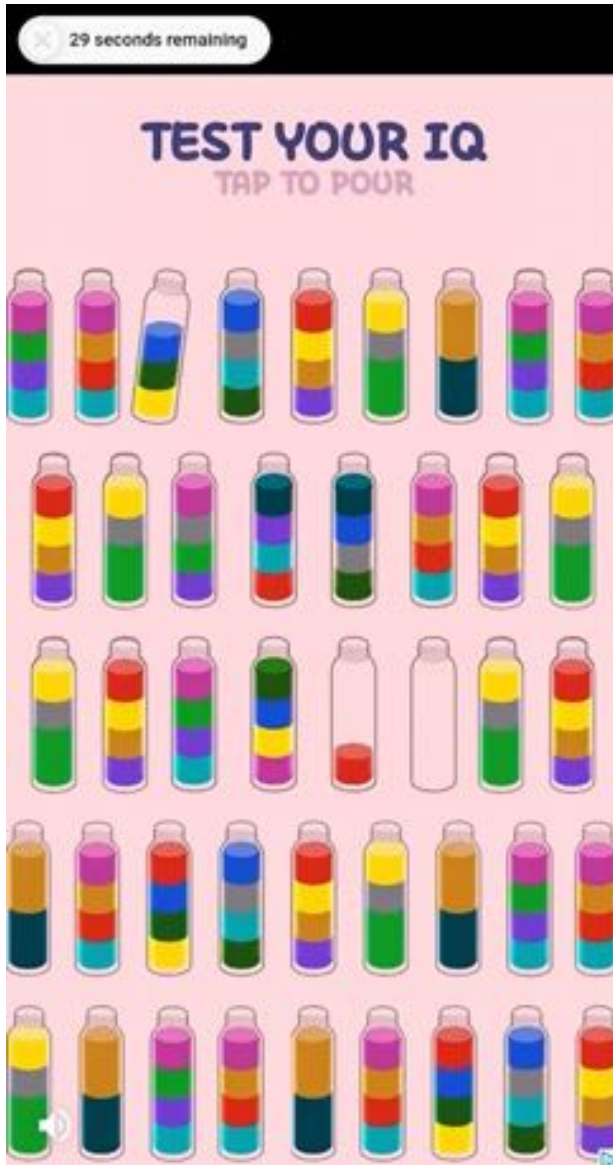
In "Space Shooter" from ONESOFT GLOBAL PTE LTD, players are presented playable advertisements that cannot be navigated away from until the timer expires. Even after clicking the exit button once it appears, the player is presented with an app store tab to download the game.

2. <u>Autoplay</u>

In "Star Wars: Galaxy Heroes" from Electronic Arts (EA) there are cutscenes, such as this one at the beginning of the game, which plays automatically with no pause or exit feature.
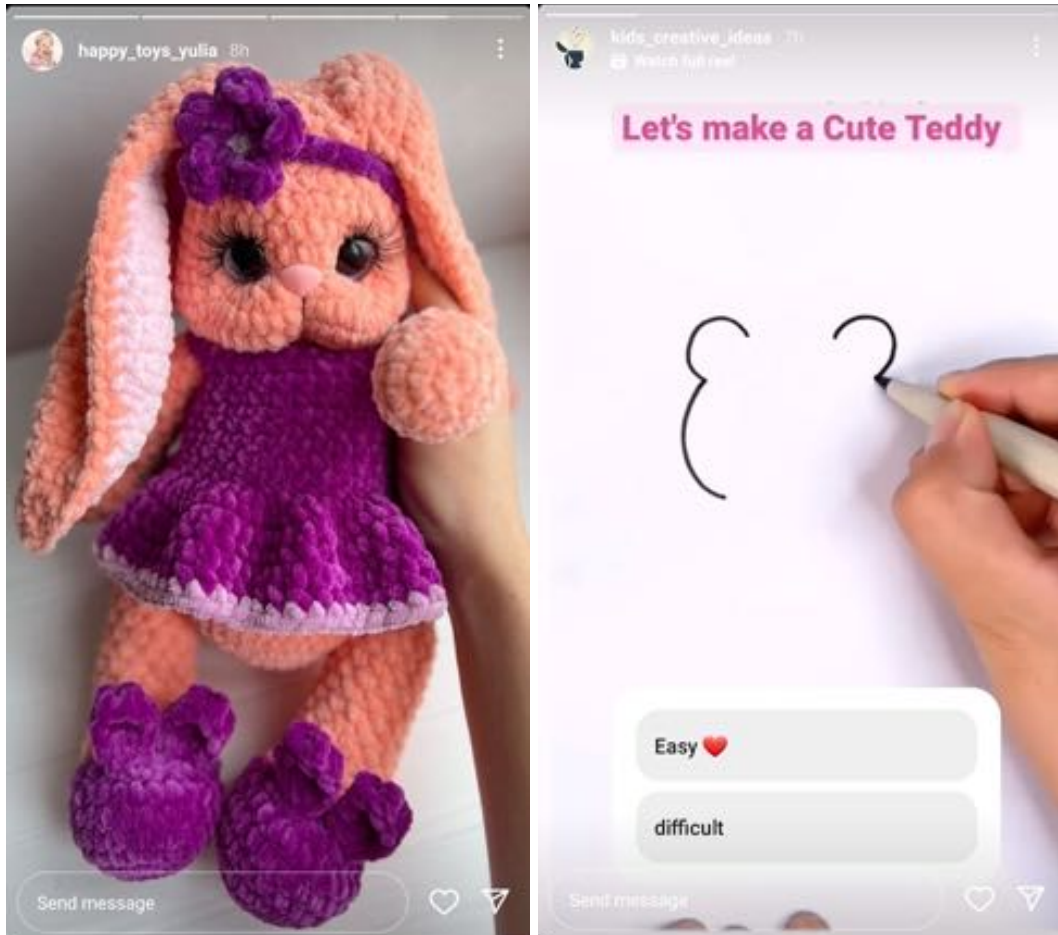
When an Instagram user views stories of an account they follow, once the timer bar at the top of the screen becomes opaque, they are automatically presented with either the next story posted by that account, or another account's story reel.

3. <u>Strategically Timed Advertisements</u>
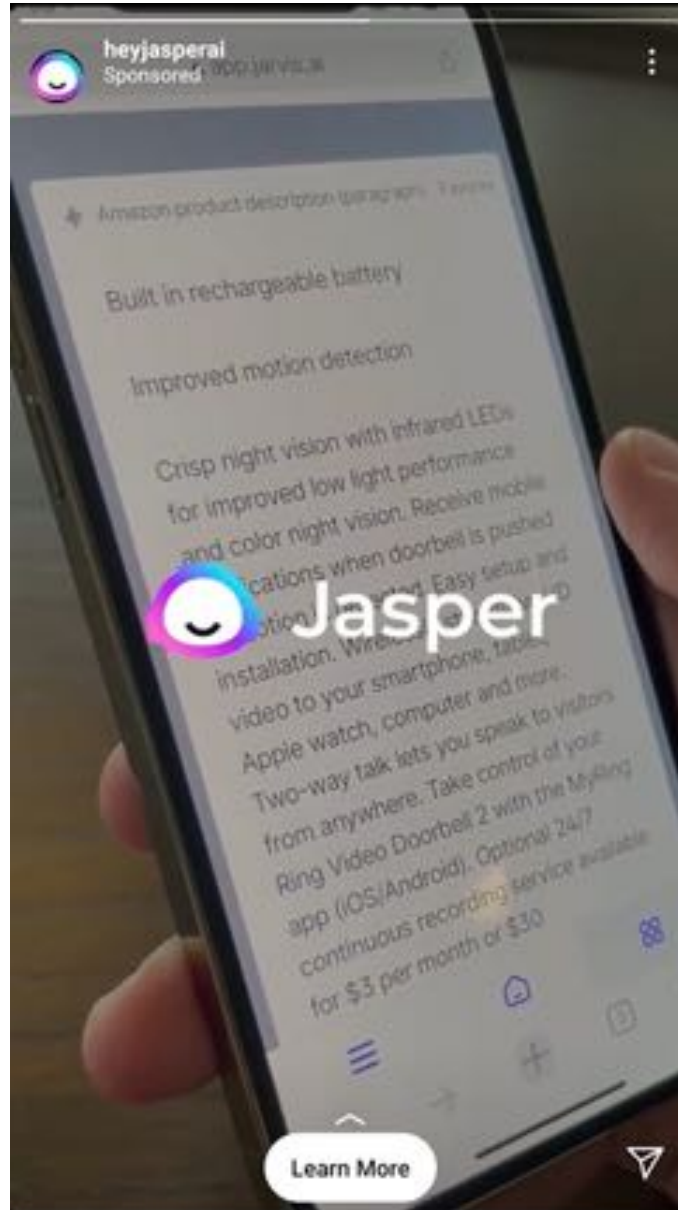
Sponsored advertisements on Instagram stories are seamlessly included between stories posted by accounts the user actually follows.
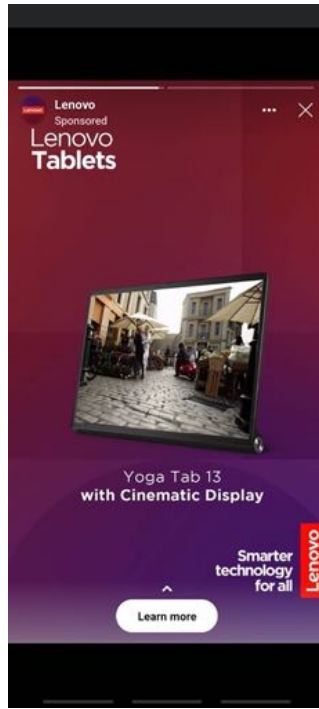
Similarly, Facebook stories also have advertisements placed between stories by accounts the user follows.
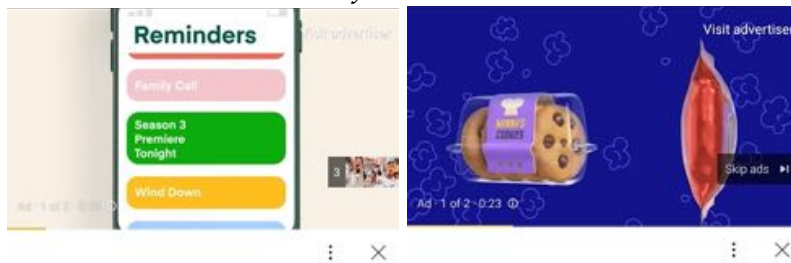
YouTube includes advertisements in the middle of videos, which have set timers ranging from 5 to 15 seconds before the user may press "skip."

In "Miss Hollywood: Vacation" from Budge, immediately after earning a prize, the player must view a video ad for another Budge game for approximately five seconds before they can open the prize.

In "Doctor for animals" from YovoGames, timed advertisements, such as this ad for "Fidget Toys 3D," frequently pop-up when the player completes tasks or navigates to a different page in the game. The player cannot navigate away from the advertisement until the timer expires.
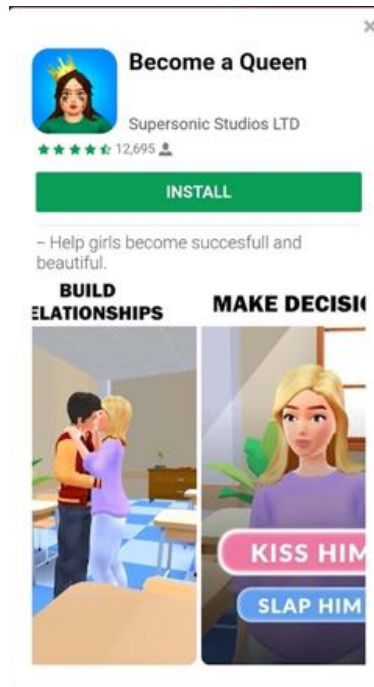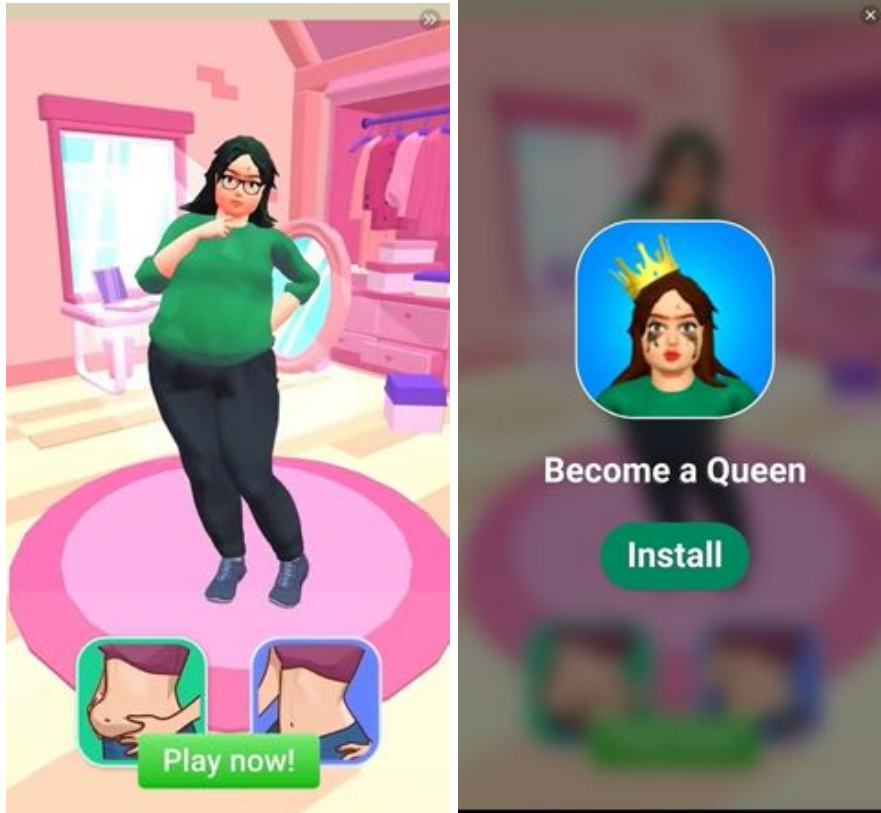
In the popular young girls' game, "Monster High Beauty Shop" by CrazyLabs LTD, timed pop-up advertisements such as this appear after the player dresses up a character or navigates to another page in the app. Even when the timer expires, clicking the exit button directs the user to the app store to install the app.

In "DragonCity" from Social Point, in-game-purchase-offers frequently pop-up when opening the app. The exit buttons are concealed within the color/design of the advertisement. The three advertisements shown above appeared consecutively, and researchers found up to seven in-game pop-up ads appear consecutively after opening the app.

In "Baby Care" from YovoGames, advertisements are subsequently played after a user has played in different game modes and decides to exit.

In "Pokémon Cafe ReMix" from the Pokemon Company, advertisements such as this would randomly appear as players navigate the menu and play through levels.
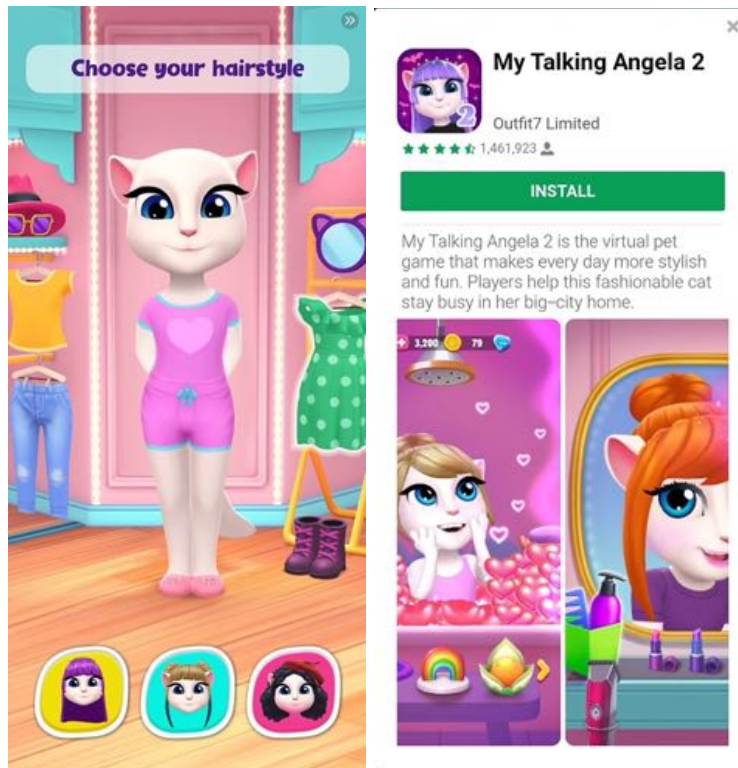
In "Go! Dolliz: Dress Up" from Dramaton, interactive pop-up ads timed for up to 30 seconds appear after the player finishes dressing up a doll or navigates to the main menu. When the timer expires, the advertisement immediately directs the player to the play store to download the app.

In "My Tamagotchi Forever" by BANDAI NAMCO Entertainment Europe, timed interactive pop-up advertisements appear, such as this ad for "Space Shooter", compelling a user to click or "play" in an ad in order to continue game play.

D. Social Manipulation

1. Quantified Popularity of a Minor's Account or Content
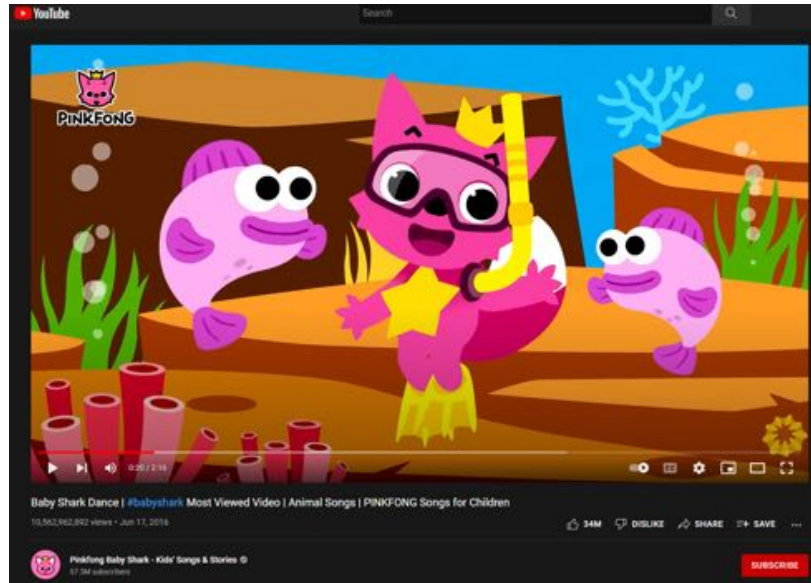
YouTube displays views and likes for each video, as well as the total number of subscribers to the channel.
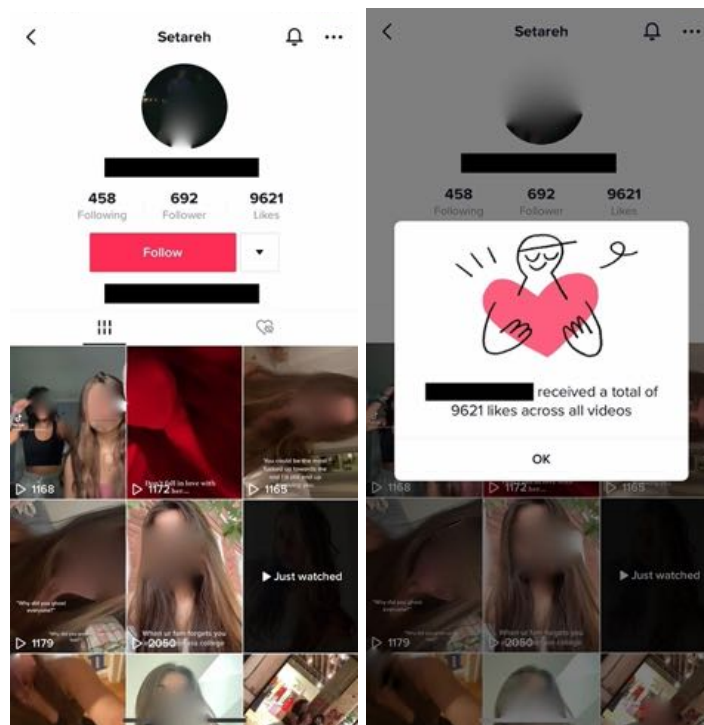
Tiktok displays the total number of likes each user has received across all videos.
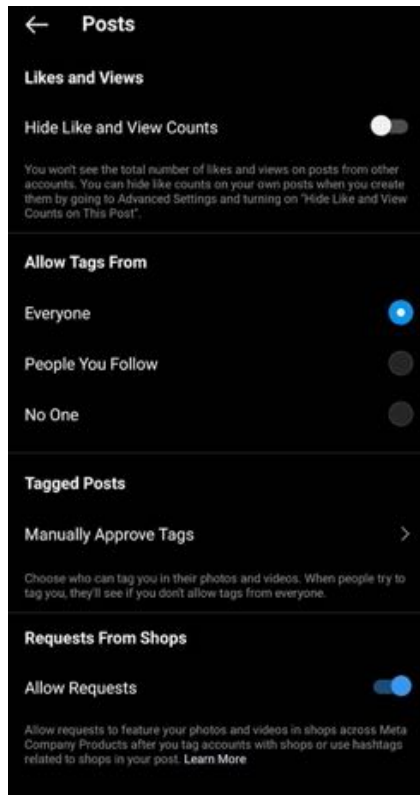
A user who wishes to avoid displaying like and view metrics for their Instagram posts must make that election on a post-by-post basis.
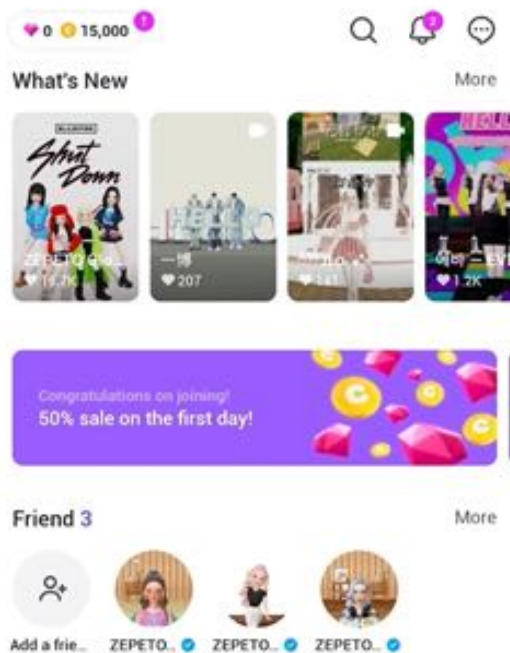
"Zepeto" from Naver Z Corporation makes visible the user's number of friends as well as the number of followers on other accounts.

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In "Covet Fashion" from Crowdstar, Inc., a dress-up app with a large teen user base, the homepage features top looks made by other players, displaying their usernames and the number of likes their outfit received.

In "Hello Kitty World 2: Sanrio Kaw" from Access Bright, Japan Inc., when a user visits another user's theme park, the top left corner displays the number of likes their theme park received. This user here is shown to have 3 likes.
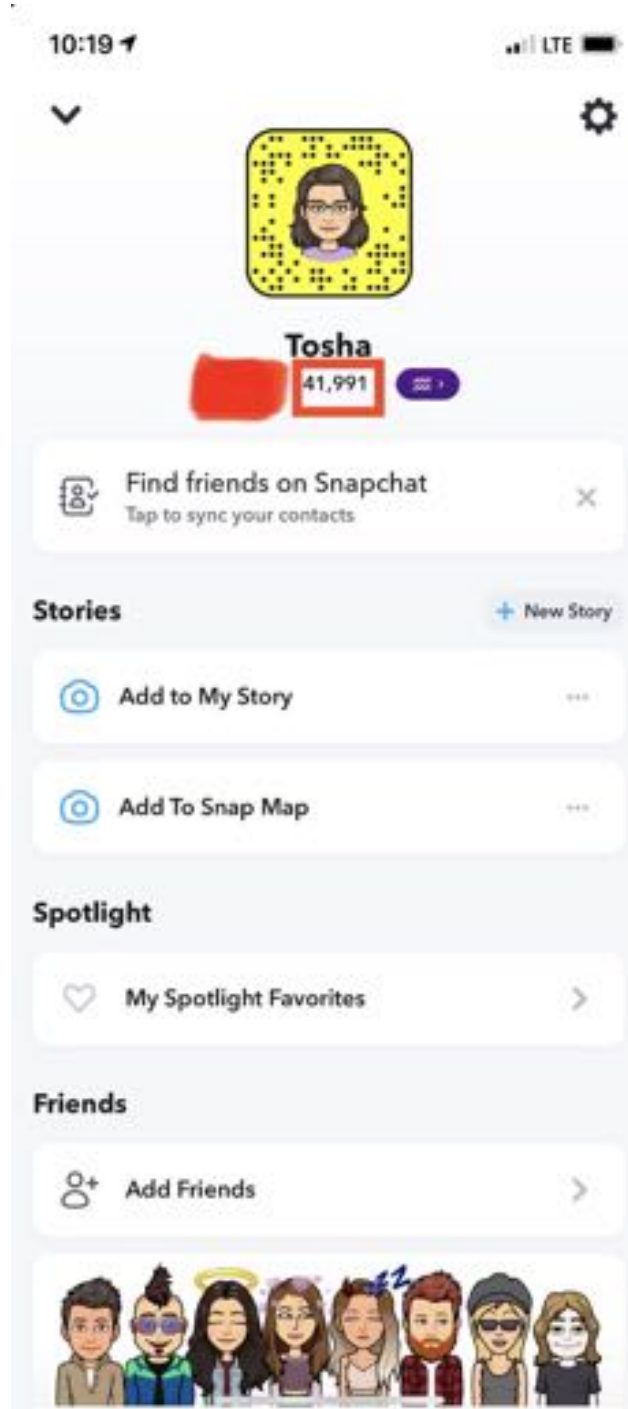
In Snapchat, a user's score is highlighted at the top of a summary of their profile. Users can also easily check friends' scores on their respective profiles.

2. <u>Named Popularity</u>

Instagram displays the usernames and profile pictures
of specific users who have liked a piece of content. The first username displayed after the "liked
by" on a post, in this case @aimi.allover, is not necessarily someone the user viewing the photo
follows.
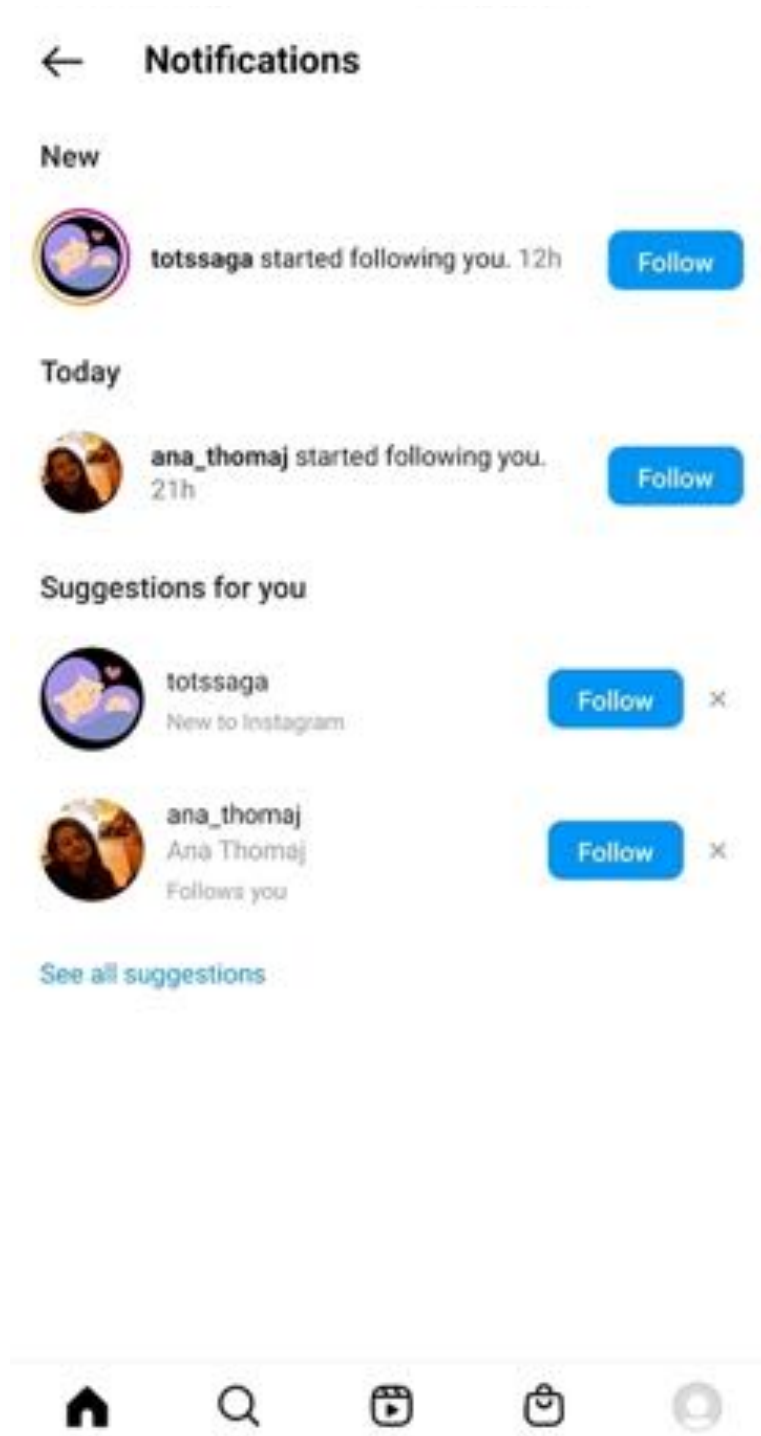
Instagram automatically sets account profile settings to "Public" for users who are minors, making their account able to be followed by users with whom they have never interacted. Users receive notifications about other users who have started following their account, displaying their username and profile picture.
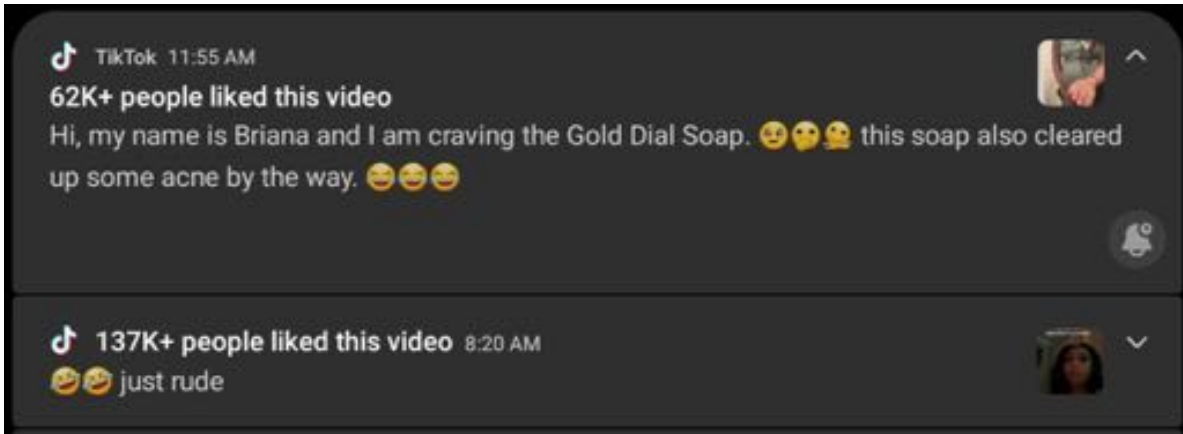
TikTok will have nudges for users to watch other popular videos. These nudges were made on an account registered as a 14-year old that was not following any other users.
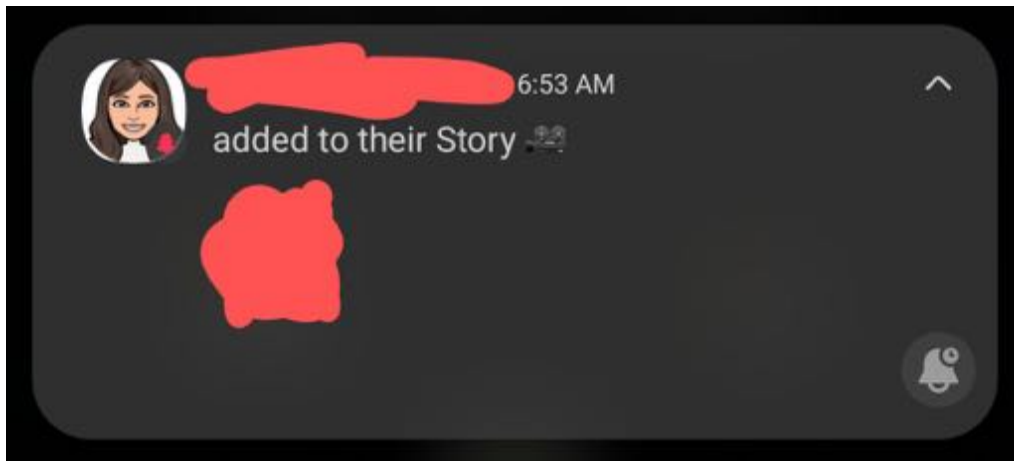
After not engaging with the app for an unspecified period of time, Snapchat will sporadically notify users of their friends posting new content to their stories.
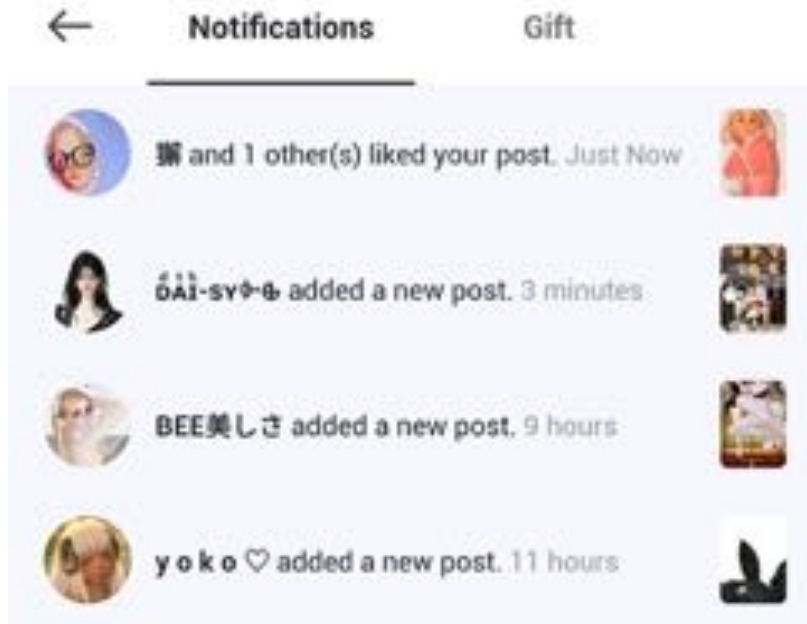
"Zepeto" from Naver Z Corporation displays the usernames and profile pictures of specific users who have interacted with a user's post.
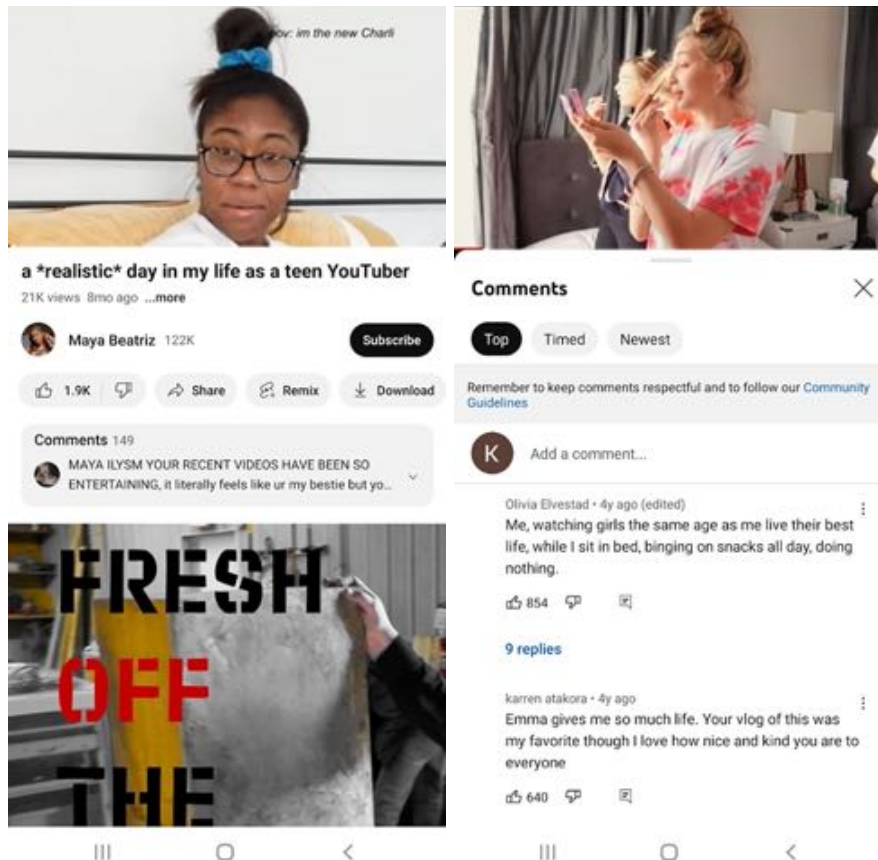
YouTube displays the usernames and profile pictures of users who comment on content posted by minors, as shown with these two videos posted by teenage video bloggers.

3. Interaction Streaks
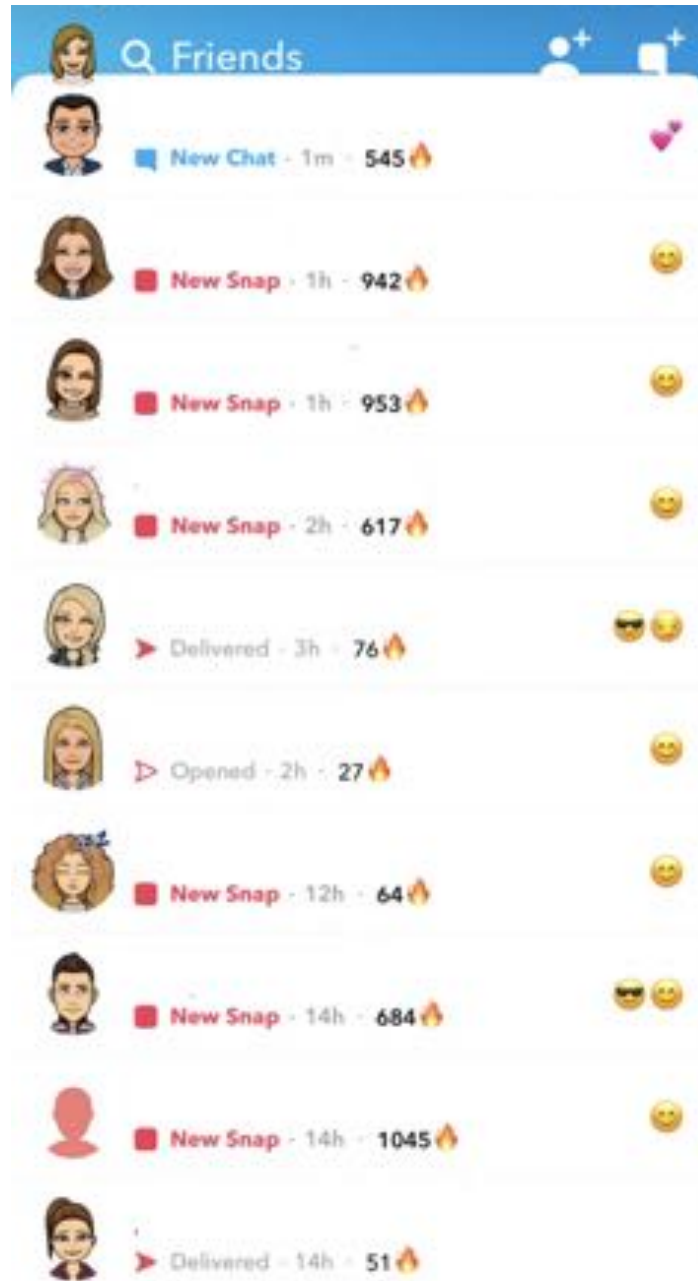
In Snapchat, a number with a flame appears next to each friend's name, indicating the length (in days) of the user's Snapstreak with the friend.

4. <u>Parasocial Relationship Pressure.</u>

A character in a Roblox game accuses the player of lying to get the player to join a group, which gives the player access to other parts of the game like battling other groups. The player may have to send a personal message to join the group.

In an ad for the well-known game "Candy Crush Saga" from King, a character will drown if players are unsuccessful or choose to ignore the advertisement. Failing to save her causes a pop-up to appear with characters looking sad and a button for users to download and play the game.
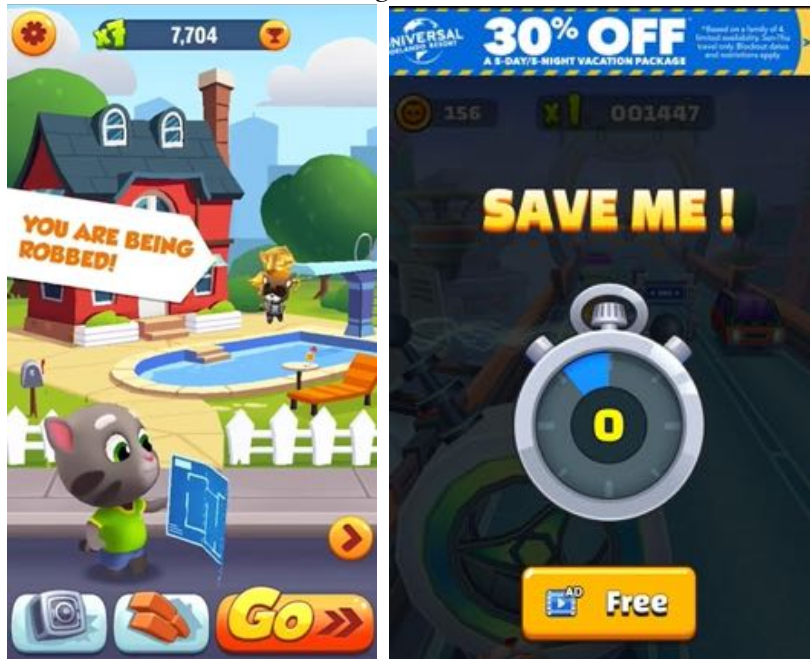
In the popular game "Talking Tom Hero Dash" from Outfit7Limited, the player is led to believe that their cute cat character is being robbed, pressuring the player to play the game by pressing "Go". When the cat character gets hit during gameplay, a countdown timer appears prompting the player to "SAVE" him by watching an advertisement.

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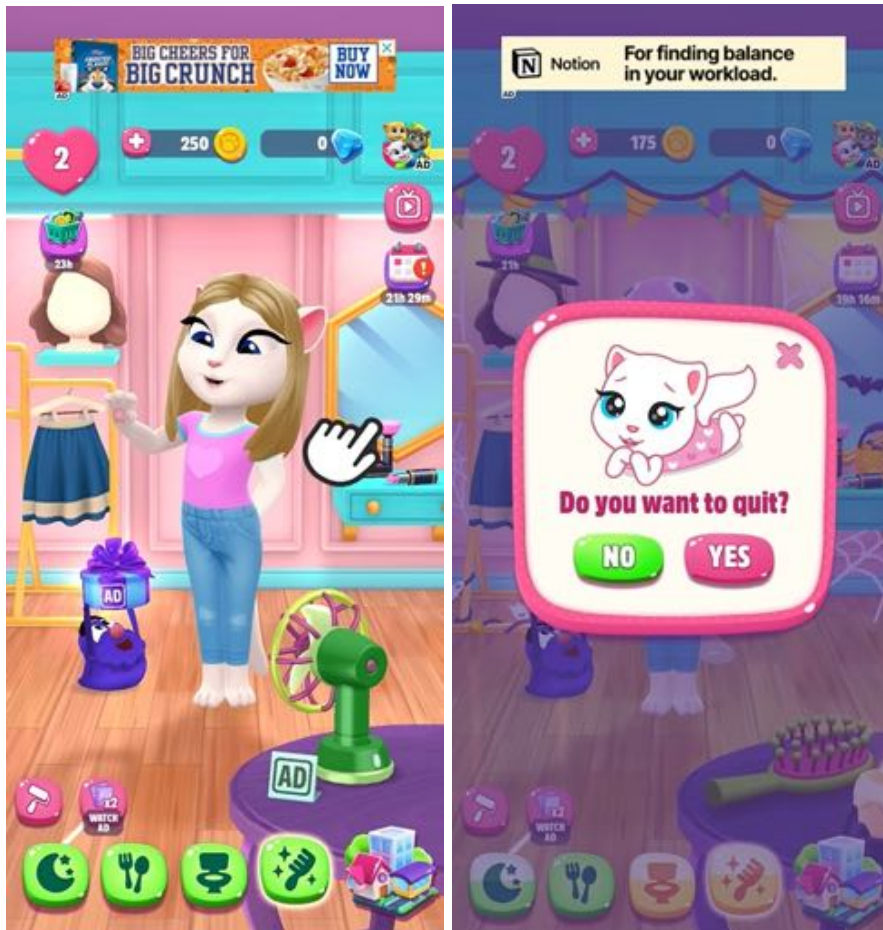
In"My Talking Angela Two" from Outfit7Limited, a smiling little purple character presents an interested Angela with a gift marked as "AD." These visuals manipulate players into clicking the present and watching an advertisement to have Angela receive the gift (left). Additionally, when the player attempts to exit the app, a pop-up with a sad-looking Angela appears asking if the player wants to quit, thus pressuring the player to remain on the game (right).

In "My Talking Tom" from Outfit7 Limited, when Tom goes to sleep, a dream cloud appears above his head with an advertisement. A child player would likely click on the advertisement simply out of desire to see what their virtual pet cat is dreaming about (top). When the player has not taken Tom to the toilet after an extended period of time, a phone notification appears indicating an emergency (bottom). This pressures the player into opening the app to take Tom to the toilet.

In "Dentist" from YovoGames, an advertisement is played after helping each animal patient. After the ad is finished, it pans to the waiting room with animals in pain incentivizing you to keep playing.

In "Sonic Forces" from Sega, in-game offers appear with the iconic video game characters Sonic and Knuckles in them encouraging users to pay for it, with an added timer at the bottom further pushing users to buy it now or lose the offer.

In "DragonCity" from Social Point, caged baby dragons appear with chat bubbles stating "Help…" When clicking the dragon, the user is asked if they want to save the crying dragon for a price of 50 diamonds–which would likely require an in-game purchase or extensive gameplay because diamonds are rarely awarded throughout the game (top and middle).
When the user refuses to purchase a limited time in-game purchase offer, a pop-up asks the user if they are sure, featuring sad baby dragons and a shocked God character (bottom).
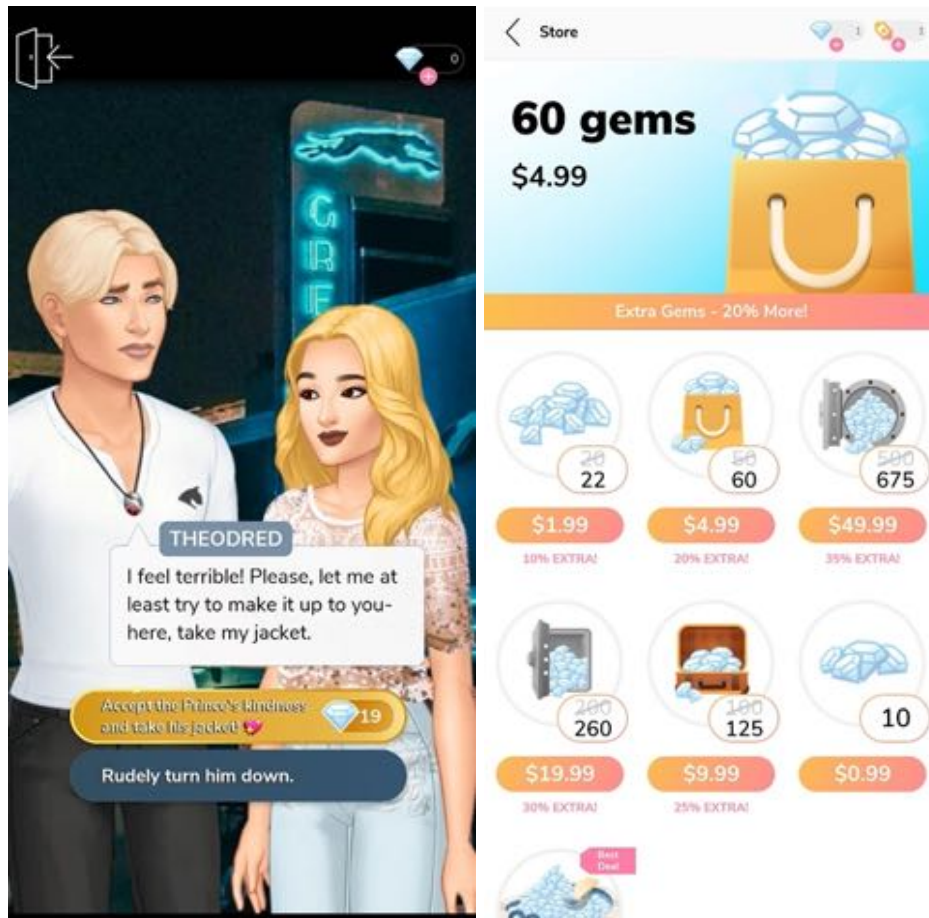
"Episode," by Episode Interactive, a popular choose-your-adventure game among teens, requires diamonds for all game choices that significantly improve character relationships and story progression. Selecting such choices inevitably requires in-game purchases; each 12-episode story offers only 1 diamond per completed episode, and each episode has 3-4 scenes requiring 14-29 diamonds for a favorable option.

The single no-cost alternative the player can choose in a given scene is always framed negatively, even though it usually does not result in as severe of an outcome as its wording would suggest. This design feature thus manipulates the player into making in-game purchases by leveraging their desire for positive in-game relationships (especially with the main love interest).

In "Monster High: Beauty Shop" from CrazyLabs LTD, after the player photographs a completed look, the popular Monster High children's toy character Clawdeen Wolf pressures the user into creating another look.
A number of fake likes also appear on the image, which would reasonably create the false perception for the child user that they are gaining popularity among other people via gameplay.

In "Squishy Magic" from Dramaton, orders appear like a text conversation with an in-game character, such as a cute bear with a crown seen above. Children could reasonably conceive of these characters and orders as real.

In "Candy Crush Saga" from King, choosing to quit a level presents you with a screen encouraging you to keep playing. If a player chooses to quit a level, a screen showing a broken heart and a character with a tear in the eye is displayed along with a "Retry" button.

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5. <u>Incentivized Reach to Larger Audience</u>
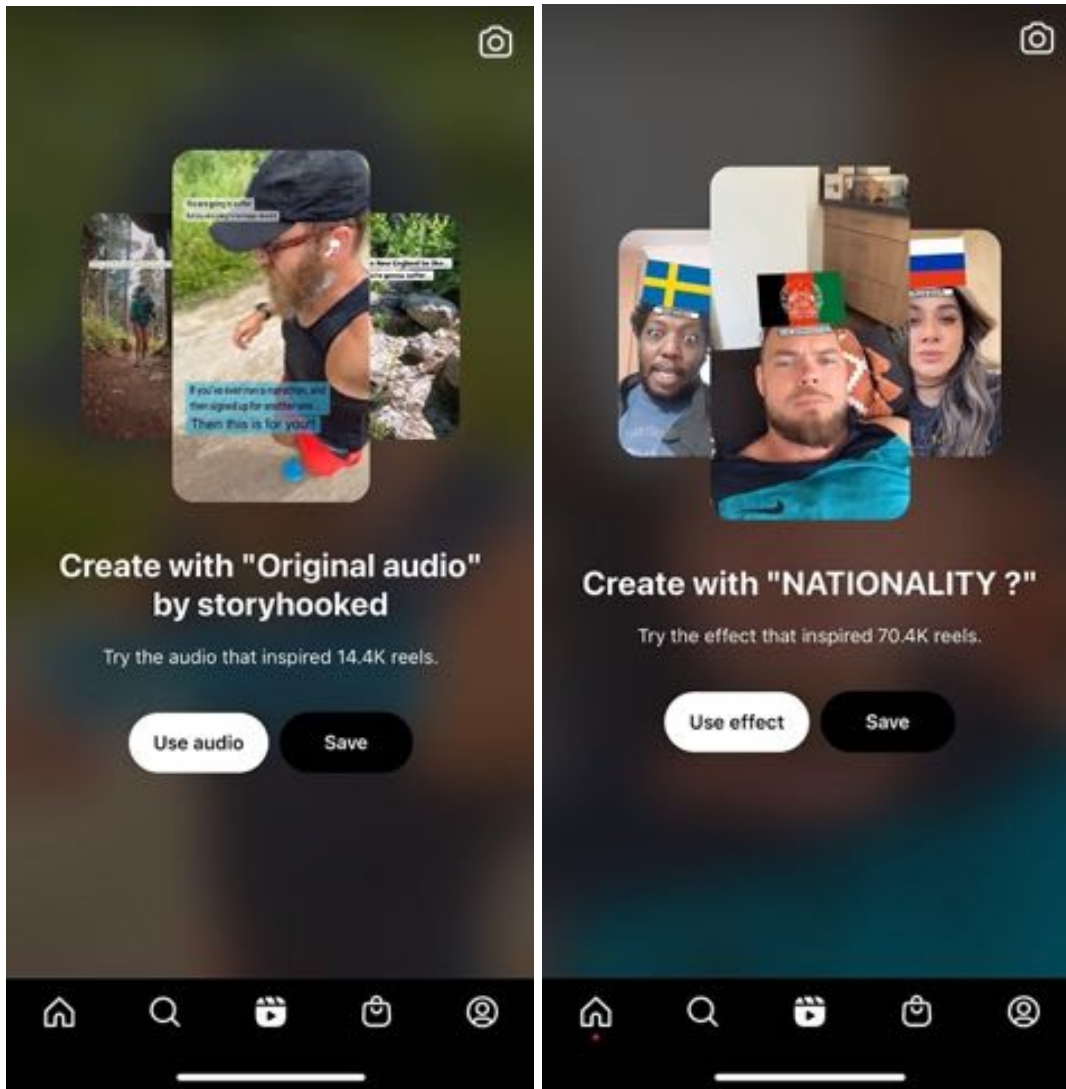
As a 14-year-old Instagram user scrolls through Reels on the app, they are prompted to create content using effects and audio that are popular among other users.
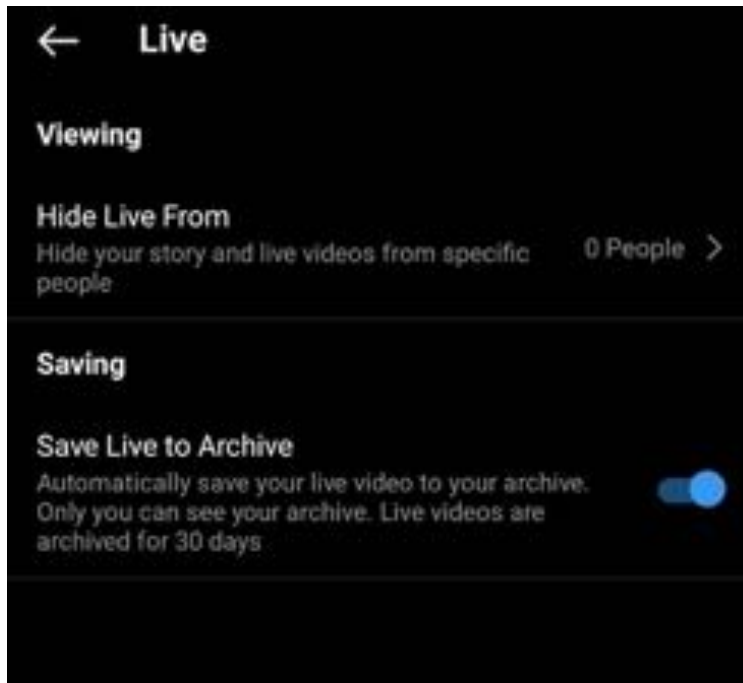
Instagram Live videos are available to everyone unless the
user identifies specific individuals they wish to exclude. To block everyone, the user would have
to make their account private.

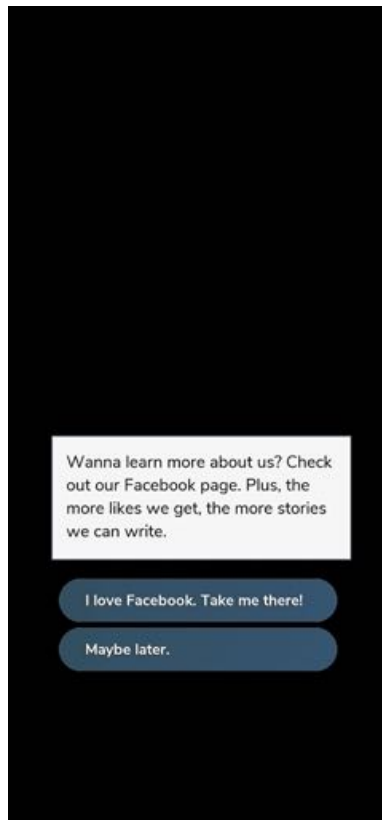

TikTok presents users with suggested accounts to follow.
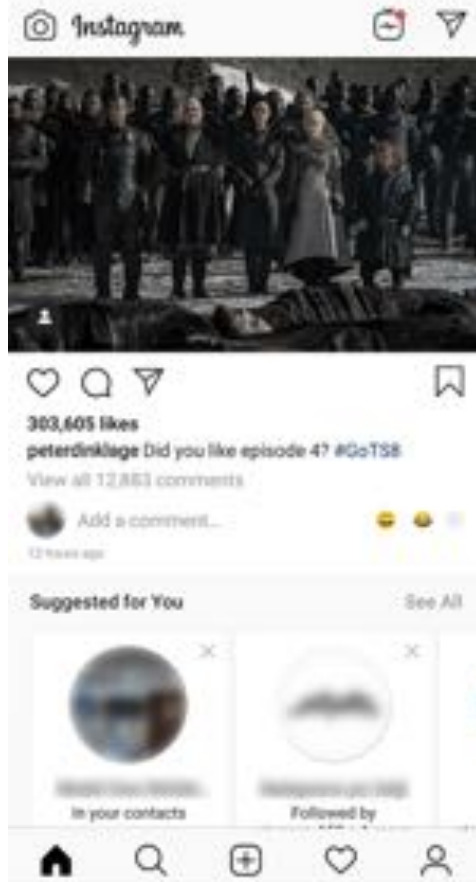
*Instagram displays "Suggested for You" profiles
encouraging the user to follow other accounts.*

*In "Candy Crush Saga" from King, the game encourages users to invite friends in order to have
more lives in the game.*

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In "Episode" from Episode Interactive, the user is randomly prompted to follow the app on the Episode Facebook page; they are incentivized to "like" it so that Episode may write more stories for users to enjoy.


In "Lords Mobile" from I Got Games (IGG), players are encouraged to share the game with their Facebook friends daily to receive in-game rewards.

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In "PK XD" Fun, Friends, and Games" from Afterverse Games, the user receives a pop-up to refer a friend to receive special rewards.

In "Best Fiends" from Seriously Digital Entertainment, signing into your Facebook account will grant you in-game items and allow you to share items with friends.
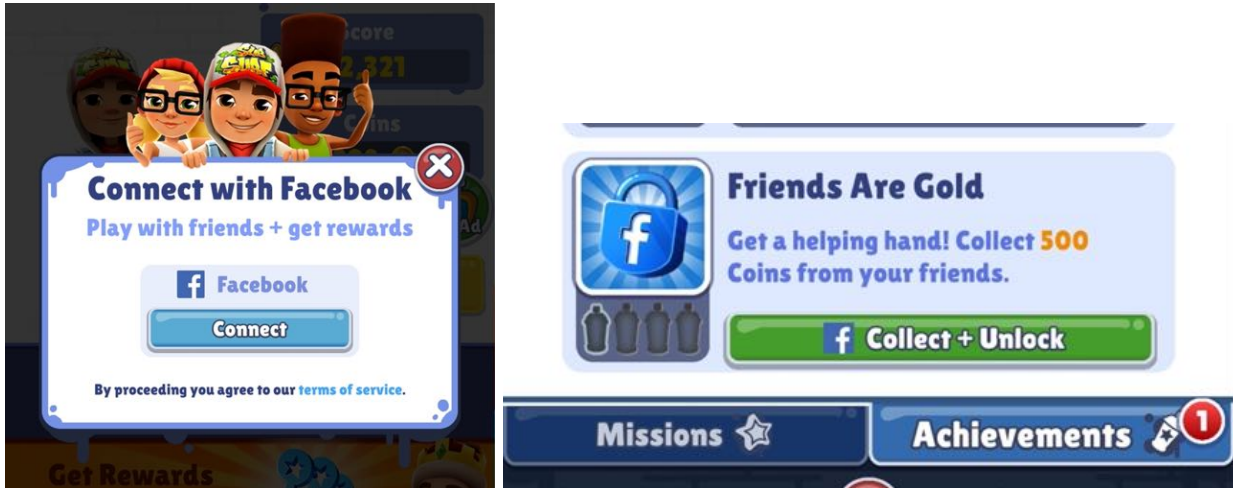
In "Subway Surfers" from SYBO Games, playing with friends from connecting your Facebook account allows for you to gain rewards in the game. Additionally, an achievement in the game is only unlockable by connecting your Facebook account.
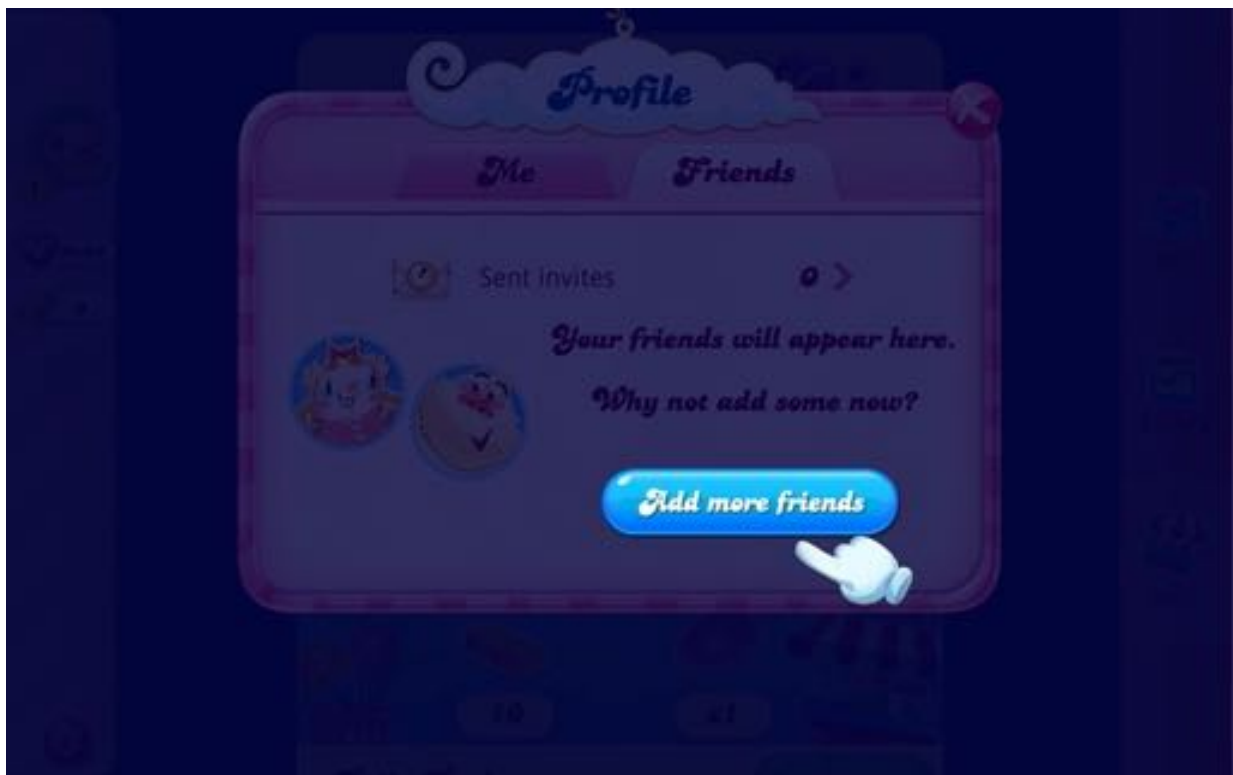
In "Candy Crush Saga" from King, the game encourages players to add friends and forces them to press the "Add more friends" button as seen here in order to progress.

In "Chibi Island" by Nexters Global, the game encourages players to join the Chibi Island group on Facebook in order to gain in-game items.
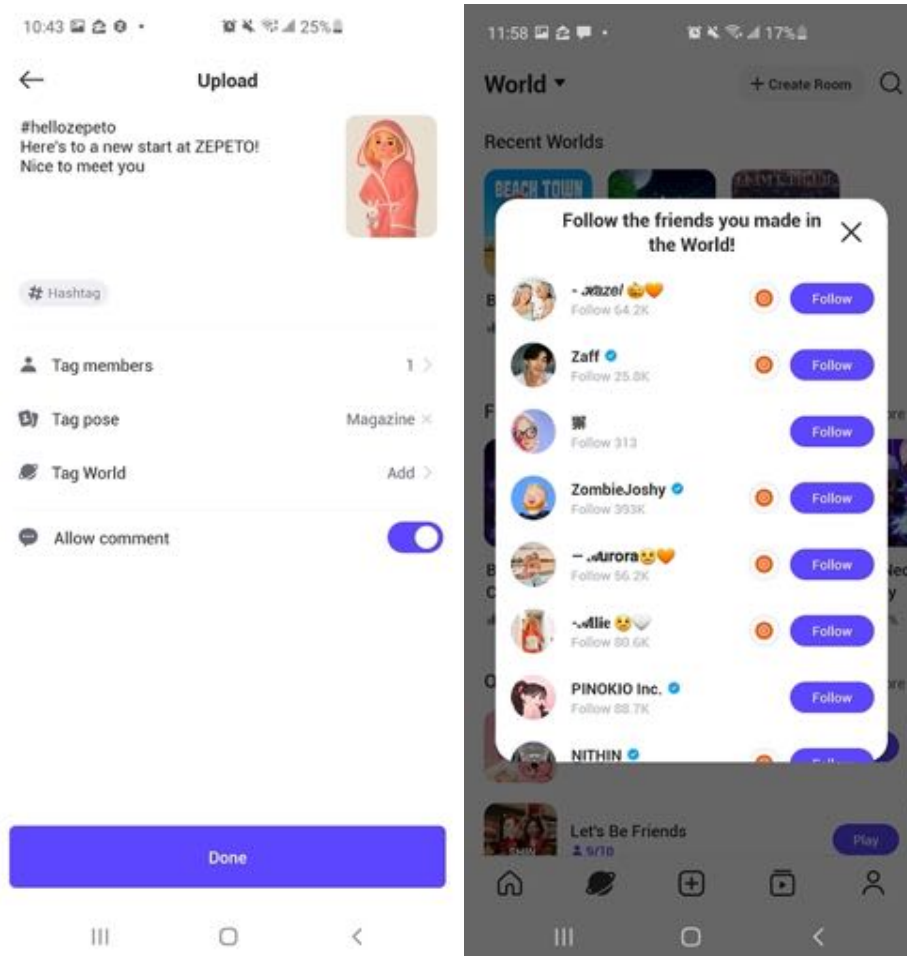
In "Zepeto" from Naver Z Corporation the user is directed to take a picture of their avatar in the tutorial and upload it to their feed where "allow comments" is turned on by default (left).

When entering a world where the user can interact with other users, a pop-up appears prompting the user to follow other users who were present there–even when the user had not interacted with any of them (right).

"Homescapes" by Playrix displays an invitation to solve a crossword puzzle in the News tab of the game, which redirects the user to a Homescapes facebook post asking for users to their guesses in the comments, which are publicly viewable.