Why Parents Help Their Children Lie to Facebook About Age: Unintended Consequences of the 'Children's Online Privacy Protection Act'

danah boyd, Microsoft Research and New York University, dmb@microsoft.com
Eszter Hargittai, Northwestern University, pubs@webuse.org
Jason Schultz, University of California-Berkeley, jschultz@law.berkeley.edu
John Palfrey, Harvard University, jpalfrey@law.harvard.edu

Abstract

Facebook, like many communication services and social media sites, uses its Terms of Service (ToS) to forbid children under the age of 13 from creating an account. Such prohibitions are not uncommon in response to the Children's Online Privacy Protection Act (COPPA), which seeks to empower parents by requiring commercial website operators to obtain parental consent before collecting data from children under 13. Given economic costs, social concerns, and technical issues, most general-purpose sites opt to restrict underage access through their ToS. Yet in spite of such restrictions, research suggests that millions of underage users circumvent this rule and sign up for accounts on Facebook. Given strong evidence of parental concern about children's online activity, this raises questions of whether or not parents understand ToS restrictions for children, how they view children's practices of circumventing age restrictions, and how they feel about children's access being regulated. In this paper, we provide survey data that show that many parents know that their underage children are on Facebook in violation of the site's restrictions and that they are often complicit in helping their children join the site. Our data suggest that, by creating a context in which companies choose to restrict access to children, COPPA inadvertently undermines parents' ability to make choices and protect their children's data. Our data have significant implications for policy makers, particularly in light of ongoing discussions surrounding COPPA and other age-based privacy laws.

Introduction

"I need your advice. My 11-year-old daughter wants to join Facebook. She says that all of her friends are on Facebook. At what age do you think I should allow her to join Facebook?" This question was posed by a mother to danah boyd, one of the authors of this article, after she gave a talk about teens' online practices to a room full of parents in a wealthy California community. This question is common – if not ubiquitous – among parents who are engaged with their children's online activity. Parents want guidance, reassurance, and wording that they can use to negotiate online access with their children. They often feel uncertain in the digital age and they are eager for information that will inform sound decision-making processes.

"I know that Facebook isn't meant for children under the age of 13," she continued, "but I'm not sure what the harm is in letting my daughter join. She's mature for her age and our computer is in the living room and I could require her to be 'friends' with me. Am I a bad mother if I let my 11-year-old on Facebook?"

The question connects a host of anxieties that surround parenting to a key issue at the center of current policy debates about children's online activities – the appropriateness and purpose of Facebook's age restrictions.

Looking at the modern array of popular general-purpose communication services (including Gmail and AIM) and social media websites (such as Facebook and YouTube), the age of 13 often serves as the cutoff for restricting user access. The reasons for this stem from how companies have chosen to respond to a law known as the Children's Online Privacy Protection Act (COPPA). Enacted in 1998 and finalized by a Federal Trade Commission (FTC) rulemaking in 2000, COPPA regulates the conditions under which commercial websites that target children under 13 or have actual knowledge of children under 13 on their site can collect and use information about them. As a result of COPPA, website operators must obtain affirmative consent from parents before children under 13 can create an account. Many websites have chosen to avoid these obligations by banning all those younger than 13 through the Terms of Service (ToS) contracts to which new users must consent.

Yet research shows that such bans are proving ineffective. Millions of under-13 youth are on Facebook (Lenhart et al., 2010; Lenhart et al., Forthcoming). Underage children gain access by lying about their age during site registration, thereby allowing Facebook to avoid the "actual knowledge" required by COPPA to trigger its protections and prohibitions.

This discrepancy prompted us to ask what parents know about underage children's participation on Facebook. On the basis of discussions with parents prior to conducting our survey [1], we learned that parents did not identify COPPA or even the general issue of privacy as the source of age restrictions on Facebook. Instead, they often told us that Facebook, MySpace, and Twitter are "mature" sites, meant only for teenagers who are old enough and mature enough to handle the various online safety issues present. Meanwhile, many of the same parents appeared to know that their under-13 children were accessing various social media sites. Given our ongoing conversations with parents in other research contexts and the high incidence of children lying about their age to gain access to sites that purport to forbid them, we sought to investigate whether children are evading age restrictions against their parents' wishes, whether parents are agnostic or unaware of such restrictions, or whether parents are complicit in children's covert participation on these sites.

By surveying a national sample of parents and guardians who have children ages 10-14 living with them, we learned that many parents do not support the site-imposed age restrictions that limit children's access to communication services and social media. Rather than offering parents easy and explicit choices to control how their children's data should be collected and used – as the Children's Online Privacy Protection Act is meant to do – many companies have chosen to avoid COPPA's regulatory framework through age-based bans which ultimately undermine parental goals and potentially discourage them from providing their children with access to the online experiences they desire. Companies' preference for avoiding these obligations are understandable, given the economic costs, social concerns, and technical issues involved in verifying children's age and parental consent.

Although many sites restrict access to children, our data show that many parents knowingly allow their children to lie about their age – in fact, often help them to do so – in order to gain access to age-restricted sites in violation of those sites' ToS. This is especially true for general-audience social media sites and communication services such as Facebook, Gmail, and Skype, which allow children to connect with peers, classmates, and family members for educational, social, or familial reasons.

This results in several unintended consequences. First, because children lie about their age, these sites still collect data about children under 13 that COPPA would otherwise prohibit without explicit parental consent. Second, rather than providing parents with additional mechanisms to engage with sites honestly and negotiate the proper bounds of data collection about their children, parents are often actively helping their children deceive the sites in order to achieve access to the opportunities they desire. Were parents and their children able to gain access honestly, the site providers might well present them with child-appropriate experiences and information designed to enhance safety, provide for better privacy protections, and encourage parent-child discussions of online safety. With deception being the only means of access, these possibilities for discussion, collaboration and learning are hindered. Finally, such a high incidence of parent-supported ToS circumvention results in a normalization of the practice of violating online rules. This results in a worst-case scenario where none of COPPA's public policy goals for mediating children's interactions with these websites are met.

As COPPA and other privacy laws – such as the "Do Not Track Kids Act of 2011" (U.S. Congress, 2011) – are debated in policy circles, it is important to understand the unintended consequences of these age-based approaches to privacy protection. This paper offers data on what parents do and do not know about age restrictions, how they respond to them with regard to their children, and how they feel about the role of government and companies in protecting their children online. We highlight the implications that our findings have for COPPA and similar laws. Finally, we recommend that privacy policymaking avoid rules based on age or other demographic categories, as they would likely have similar unintended consequences.

Background on the Children's Online Privacy Protection Act (COPPA)

In 1998, the U.S. Congress enacted the Children's Online Privacy Protection Act (COPPA), requiring the Federal Trade Commission to regulate commercial website operators of sites targeted at children or who have actual knowledge of a child's participation. The framework that they provided includes processes to ensure that website operators obtain "verifiable parental consent" prior to the collection and use of information on children under 13 years old (Matecki, 2010; U.S. Congress, 1998; Federal Trade Commission, 1998). Although earlier incarnations of the bill used different ages as cutoffs, public-interest organizations encouraged the committee to set the age at 13 (Mulligan, 1998). Details of how regulators settled on the age of 13 are unclear.

In enacting COPPA, legislators hoped to protect children from predatory marketing, physical safety risks such as stalking or kidnapping, and other abuses that may result from others' access to children's private data (Matecki, 2010; Federal Trade Commission, 2007; Warmund, 2001; Bryan, 1988). Lawmakers also intended that, by requiring companies to inform parents of their data-collection practices and obtain permission for uses of their children's data, COPPA would provide parents with better tools to protect their children in an online era (Bryan, 1998). There was concern that online technologies could easily "circumvent the traditional gatekeeping role of the parent" (Federal Trade Commission, 1998, p. 5). The "parental empowerment" approach taken by COPPA was similar to the approach taken by regulators in addressing other media such as television (Montgomery, 2007, p. 103).

While focusing on the admirable goals of protecting children and empowering parents, policy makers also believed COPPA would not impose significant obstacles to innovation, economic growth, or youth access to online learning opportunities (Federal Trade Commission, 2010; Bryan, 1998).

Industry Responses to COPPA

COPPA has succeeded both in stopping some egregious predatory data practices and in raising some level of awareness of the issue of collecting data about children (Federal Trade Commission, 2010). The FTC has actively enforced COPPA, leveraging civil penalties against those who fail to obtain parental consent or ineffectively implement its provisions (Matecki, 2010). Many consumer groups and children's advocates have heralded COPPA (e.g., Common Sense Media, 2010b; Montgomery, 2001).   As a result of COPPA, companies that target young users (e.g., Webkinz, Club Penguin, Neopets, etc.) have either limited functionality to make compliance easier or developed mechanisms to obtain parental consent, often through the use of a credit card. In a study a year after COPPA was enacted, the Center for Media Education found a significant decline in data collected about children by online websites (Montgomery, 2001).

While many of the outcomes of COPPA are positive, the Federal Trade Commission has conceded that, in response to COPPA, online industries have generally neither innovated nor emphasized mechanisms for obtaining verifiable parental consent (Matecki, 2010). Instead, to avoid the economic cost, social issues, and technical challenges associated with obtaining consent, to evade the difficulties of dealing with youth's personal data, and to steer clear from the hefty fines and public embarrassment of enforcement actions, many websites simply decide to limit their services to children 13 and older (Mateki, 2010; Aftab, 2005; Warmund, 2001). These restrictions are typically articulated in the sites' Terms of Service, to which users must consent when they create an account. Upon creating an account, most sites ask users for their age or their birth date to ascertain if they are of age to meet site requirements. When a potential user indicates being under 13 years of age, the website does not allow that person to create an account.

Facebook, for example, includes "You will not use Facebook if you are under 13" as a condition of participation in its "Statement of Rights and Responsibilities" (Facebook, 2011a). In its ToS, Facebook reserves the right to terminate accounts of those who violate this condition: "If you violate the letter or spirit of this Statement, or otherwise create risk or possible legal exposure for us, we can stop providing all or part of Facebook to you." When underage users attempt to join Facebook having specified an age under 13 during the sign-up process, they are told, "Sorry, you are ineligible to sign up for Facebook."

Children's Response to Facebook's Under-13 Ban

In response to Facebook's restrictions, many young people appear to lie about their age to gain access to these services, often in violation of the ToS. In 2010, Pew Research released a report stating that "73% of online American teens ages 12 to 17 used an online social network website." In particular, 78% of 14-year-olds, 62% of 13-year-olds, and 46% of 12-year-olds report using social network sites (Lenhart et al., 2010). As Pew states in its report, "These age findings are understandable in light of age restrictions on social networking sites that request that 12 year olds refrain from registering or posting profiles, but do not actively prevent it" (Lenhart et al., 2010, p. 17). In 2011, Pew revisited this issue in a new report with collaborators at Cable in the Classroom and the Family Online Safety Institute. They found that 45% of online 12-year-olds report using a social network site compared with 82% of 13-year-olds (Lenhart et al., Forthcoming). Additionally, they found that 44% of online teens admit to lying about their age so they could access a website or sign up for an online account. Although Pew highlights that the number of 12-year-olds on social network sites is significantly lower than the 13- and 14-year-olds, the fact that a little less than half of 12-year-olds *do* report using the sites – and the fact that a little less than half of all youth Pew surveyed reported lying about their age to get access to a website – suggests that violating age restrictions is common.

Pew is not the only organization to identify underage users. Although COPPA only applies to U.S. children, most websites' ToS restrictions apply to all users, regardless of jurisdiction. In Europe, the EU Kids Online survey included 2010 data showing wide adoption of social network sites by young children there as well. Of online children, 31% of 10-year-olds, 44% of 11-year-olds, and 55% of 12-year-olds reported using a social network site (Livingstone, Olafsson, and Staksrud, under review). Those children whose parents placed no restrictions on social network sites or who allowed their children to create social network site profiles if they asked for permission were far more likely to join a social network site than those who were forbidden, suggesting some effectiveness for parental influence. Also pertinent is these researchers' finding that in countries where the dominant social network site has no age restriction, the proportion of children under 13 reporting that they use social network sites is generally higher.

Few in the news media took special note of the findings by either Pew or EU Kids Online regarding under-13s' use of Facebook despite their violation of the site's terms. This changed when, in March 2011, a New York Times article reported figures from comScore suggesting that "3.6 million of Facebook's 153 million monthly visitors in [the United States] are under 12" [2] (Richtel and Helft, 2011). Then, in May 2011, Consumer Reports announced findings that "[o]f the 20 million minors who actively used Facebook in the past year, 7.5 million of them were younger than 13" (Consumer Reports, 2011).

These reports of underage users on Facebook prompted a public discussion about the efficacy of the current system (Heussner, 2011; Rochman, 2011). In short, the prevalence of underage users on Facebook and other online sites raises serious questions, including those of an ethical nature as well as questions of legal liability for violating Terms of Service agreements (Kerr, 2011).

Facebook's Response to Children's Circumvention of the Under-13 Ban

In response to reports of underage users and the wave of news coverage that followed, Mozelle Thompson – a member of Facebook's advisory board who is also a former FTC commissioner – asserted that "Facebook removes 20,000 people a day, people who are underage" (Carr, 2011). Indeed, Facebook takes various measures both to restrict access to children and delete their accounts if they join. For example, Facebook allows its users to report underage community members through a form that says, "If you are reporting a child's account registered under a false date of birth, and the child's age is reasonably verifiable as under 13, we will promptly delete the account. [..] If the reported child's age is not reasonably verifiable as under 13, then we may not be able to take action on the account" (Facebook, 2011b).

The bottom line, however, is that youth under 13 appear to be on Facebook in large numbers. And while Facebook takes steps to remove underage users, Facebook's

CEO Mark Zuckerberg stated at a talk on education that Facebook only imposes the under-13 prohibition because of COPPA's restrictions (Lev-Ram, 2011). He argued that younger children should be allowed to get on Facebook because doing so is an important part of the educational process. With regard to COPPA, Zuckerberg stated, "That will be a fight we take on at some point" (Lev-Ram, 2011).

Given the extraordinary popularity of Facebook, many policy makers and journalists have focused on Facebook's failure to verify the age of users properly even though Facebook complies with COPPA, takes measures to restrict access to children, and actively deletes children's accounts. Part of the challenge is that age verification is not technically easy nor is it without serious legal, economic, and social concerns [3]. In 2005, the Federal Trade Commission received five comments relating to underage users:

> Two commenters stated that some children falsify their age to register on Web sites that screen for age, but provided no empirical information as to how frequently this occurs. Other commenters stated that age falsification is not a problem in practice, especially when Web sites follow Commission staff guidance and request age information in a neutral manner, then set session cookies to prevent children from later changing their age. One commenter suggested that attempting to regulate online age falsification would be unrealistic, because there is no way to prevent certain children from falsifying their age. (Federal Trade Commission, 2006)

The Federal Trade Commission addressed the age-verification issue in both its 2005 and 2010 reviews of COPPA but did not recommend taking any particular action on the issue.

The Renewed Debate over COPPA and Age-Based Privacy Regulations

Beginning at the 10-year mark of COPPA enforcement, there has been renewed interest not only in revisiting the COPPA Rule but also in extending it (Federal Trade Commission, 2011; U.S. Congress, 2011). On March 24, 2010, the FTC published a Federal Register Notice for public comments regarding COPPA, particularly in response to "changes in the online environment" such as social network sites, mobile communication technology, geolocative data (i.e., a child's physical location as known to a web service or mobile device), and interactive media (Federal Trade Commission, 2010). In addition to collecting comments, the FTC held roundtable discussions on June 2, 2011 regarding various aspects of the COPPA Rule. On September 15, 2011, the FTC released proposed revisions to the COPPA Rule for public comment (Federal Trade Commission, 2011).

Many privacy advocates, industry representatives, and parent groups have engaged with the review process [4]. Privacy advocates and relevant interest groups showed a desire to maintain the COPPA regulation, although at times with modifications

(Balkam, 2011; Thierer, 2011). Parent groups such as Common Sense Media asked Congress to do more to protect youth (Common Sense Media, 2010a; Simpson, 2011). In response, Adam Thierer – a research fellow at George Mason's Mercatus Center – called Common Sense Media's filing "troubling" (Thierer, 2010). While at the Progress and Freedom Foundation, Thierer and his colleague Berin Szoka argued that free speech concerns, the economic costs of COPPA compliance, the technical issues with age verification, and the fact that compliance means collecting more data about children all suggest that an expansion of COPPA would be ineffective if not harmful (Szoka and Thierer, 2009).

Alongside the COPPA reviews, there have also been efforts to see COPPA as a baseline framework for new privacy legislation or regulatory regimes, especially with regard to children's online information (U.S. Congress, 2011). Such legal efforts presume COPPA to be successful at providing parents with tools to directly control and curb abuses of children's data.

As these proposals are being considered, it is important to note that there are many unanswered questions as to whether or not COPPA has been effective in achieving its stated goals, and to what extent parents have found it understandable, useful, or even helpful. In particular, given the high incidence of children lying about their age to gain access to sites that forbid them, it has not been clear whether children are evading age restrictions in contradiction of their parents' rules and preferences, whether parents are agnostic or unaware of such restrictions, or whether parents are complicit in children's participation on these sites.

Research Questions

While parents are often invoked in relation to COPPA – and organizations exist to speak on behalf of them – data concerning their attitudes and practices with respect to age-based restrictions have played little role in the discussion. To address the data limitations in this area, we surveyed parents about their practices with respect to their children's access to social media, their attitudes toward age restrictions, and their understanding of social media sites' restrictions and regulations. Although we asked parents about a wide range of sites and services, we have focused our analysis here on Facebook because much of the public controversy has focused on that service in particular. Thus, in analyzing our data, we sought to answer to the following questions:

1. Do parents believe that their children are on Facebook? Among those who do, at what age do they believe their children joined the site? And what role – if any – do these parents play in their children's creation of Facebook accounts?
2. Do parents recognize that there is a minimum age for creating an account on Facebook? If so, do they allow their children to join below the minimum age?

Do they believe that the minimum age is a recommendation or a requirement?
3. What – if any – age do parents believe should be the minimum for joining Facebook? And if there should be a minimum age, who should enforce it?
4. Are there situations in which a parent would find it acceptable for their child to circumvent minimum age restrictions? If so, for what reasons?
5. What role – if any – do parents believe the government and/or companies should play in protecting their children?

Data and Methods

To address our questions, we conducted a survey on a nationally representative group of parents or guardians [5] with children ages 10-14 in their household. In this section, we describe the data collection methods, provide baseline information about our respondents and explain how we measured the variables of interest.

Data collection

Our results are based on a national sample of 1,007 U.S. parents age 26 and over who have children living with them between the ages of 10-14 and who do not work in the software industry [6]. The research firm Harris Interactive administered the data collection online on July 5-14, 2011 using a sample obtained through Research Now's e-Rewards panel. This is an invitation-only opt-in panel that offers potential respondents an incentive in the form of a drawing for a reward. Invitations to the survey were sent to a stratified random sample of U.S. residents pre-profiled for being age 26 or older and having a 10-14 year-old child in the household. Up to three invitation reminders were sent to potential respondents. On average, people spent 19 minutes filling out the survey. All data analyses were conducted by the authors and not by Harris Interactive.

Respondents' background

Respondents reflect varied demographic and socioeconomic backgrounds (see Table 1 for both unweighted and weighted descriptive statistics). The data in the analyses are weighted to known demographics of U.S. residents ages 26 and older who have at least one child ages 10-14 living with them in the household based on the 2010 Current Population Survey of the U.S. Bureau of Labor Statistics. Weighting demographics include: gender, age, race/ethnicity, education, household income, region of the country, number of children in the household, and age/gender of children in the household. Propensity score weighting was also used to adjust for respondents' propensity to be online. The weighted data are used throughout this article unless stated otherwise.

Table 1. Background of study participants (N=1,007)

	Unweighted	Weighted
Gender		
Female	57%	57%
Male	43%	43%
Age		
Mean	41	42
Median	41	42
Race and Ethnicity		
African American/Black, non-Hispanic	14%	11%
Asian American/Pacific Islander, non-Hispanic	6%	3%
Hispanic	16%	18%
White, non-Hispanic	59%	62%
Mixed Race/Other	4%	4%
Unknown/Decline to answer	1%	2%
Education		
High school or less	24%	40%
Some college or Associate's degree	36%	28%
Completed College	21%	21%
Graduate school or degree	19%	11%
Household income		
Less than $35K	16%	21%
$35K-74.9K	32%	30%
$75K-124.9K	28%	25%
$125K or more	16%	18%
Decline to say	7%	6%

Region of U.S.		
East	27%	21%
Midwest	25%	23%
South	24%	31%
West	24%	24%
Metro area		
Urban	22%	22%
Suburban	55%	52%
Rural	23%	26%

Given the focus on technology and parenting, we opened by asking parents if they thought that technology made being a good parent easier or more challenging; 59% believed that technology made being a good parent more challenging.

Child Choice for Focus of Parent Responses

Respondents were asked to list the age and gender of each child living with them. Respondents qualified for the survey if they reported having at least one child living with them between ages 10-14. If respondents reported having more than one such child then they were assigned one child to focus on throughout the survey. The child chosen was one as close to the age of 12 as possible. Table 2 shows the distribution of the children who were the focus of parents' responses by age and gender. To ensure that respondents continued to focus on the same child throughout the survey, all questions asking about the child's behavior included a reference to the age and gender of the child.

Table 2. The age and gender of the child who was the focus of parents' responses.

	All	Female	Male
Age 10	15%	46%	54%
Age 11	23%	48%	52%
Age 12	26%	50%	50%
Age 13	25%	48%	52%
Age 14	11%	46%	54%

We asked parents whether the child selected was more or less socially mature than others their age; 16% said less socially mature, 25% indicated more socially mature, and 59% said about as socially mature as others.

Information about Children's Facebook Use

We asked parents a series of questions concerning their child's Facebook use. We started by inquiring whether, to the best of the parent's knowledge, their child currently has or at a previous time had an account on Facebook. If that was the case, we followed up with a question about the age at which the child had signed up for the service. Then we asked whether the parent had been aware at the time that their child was using Facebook followed by whether the parent had assisted the child in signing up for an account. Next, we presented all parents who indicated that their child was on Facebook with a list of possible reasons why they may have allowed their child to use the site and asked them to indicate all that applied.

Beliefs about Facebook's Age Guidelines and Policies

We wanted to understand how much parents know about Facebook's age policies and what they perceive to be acceptable age limitations for use of related services. To get at these questions, we started by asking respondents what they thought was an acceptable age for a "typical child to first have an account" on "social network sites (e.g., Facebook)". Then we inquired about the age at which the child's "friends and acquaintances typically first have an account" on such services.

Next, we noted to respondents that some sites set a minimum age to create an account and then asked that parents check off which sites on a list of services we provided (including Facebook) they thought had a minimum age. If the parent checked off Facebook on the list, then we followed up with a question about what they thought that age was. Next, we asked whether the parent believed that age to be a recommendation or a requirement. Then, we used an open-ended format question to ask these parents their opinion on why the sites they marked have a minimum age.

A set of questions that followed inquired about whether parents thought there "should" be an age requirement to use various services and what they thought that age should be if they answered in the affirmative. We also asked whether there were situations that would prompt parents to allow their children to use services even if they were younger than the site's age limit (Table 7 has the list of possible situations).

Parents' Thoughts about the Role of Companies and the Government

We wanted to get a sense for parents' beliefs about who should have the last word on their children's use of online services: the parent, the child, the government or the company providing the service. We asked a question about whether companies should be the ones establishing minimum age restrictions for site usage or whether parents should be able to decide at which age their children are ready to use a service. Finally, we inquired about the level of input parents preferred from the

government on these matters (i.e., whether they preferred laws, recommendations, or no such input).

Results: Parental Practices and Attitudes

Children's Access to Facebook

Facebook's Terms of Service require that children be at least 13 years of age to join the site. Half of parents (50%) in our study report that their child is on Facebook, even in cases where children do not meet the legal age requirement for use of the site. Among parents of children who are old enough to be on Facebook – the parents of 13- and 14-year-olds – almost three quarters (72%) report that their child uses the site. Yet, almost a fifth (19%) of our respondents who were reporting on their 10-year-old child's online experiences also noted that the child has a Facebook account. And this number goes up to close to a third (32%) for children age 11 and over half (55%) for 12-year-olds (see Table 3 for details).

Table 3. Percentage of children of different ages with a Facebook account (N=1,007).

	Child's Current Age				
	10	11	12	13	14
Has Facebook account	19%	32%	55%	69%	78%

While we did not survey the children directly and are thus unable to say what percentage of children lie to their parents about their Facebook use, data collected by Pew and its partners from children during a similar period (Lenhart et al., Forthcoming) support our findings. Given that the Pew report found that approximately half of 12-year-olds are on a social network site – and we found that approximately half of parents of 12-year-olds report that their children are on Facebook – we can presume that the majority of parents have an accurate sense of whether their children have an account or not.

Many children join Facebook before they are 13. Of all parents surveyed – including ones whose children are not on Facebook – 36% reported that their child joined Facebook under the age of 13 even if the child is now older than 13. When considering just the parents who report that their child is on Facebook, 72% reported that their child joined Facebook when the child was younger than 13.

Table 4 reports the mean age at which the child signed up for a Facebook account, by current age of the child among parents who said their child is on Facebook. Among children ages 10-13, on average the sign-up occurred approximately a year earlier (that is, a 10-year-old child signed up at age 9 an 11-year-old at age 10, etc.). Fourteen-year olds are an exception with an average age of 12 at sign-up. Even when the child did not meet the minimum age requirement, Table 4 demonstrates

the majority of parents were aware that their child was creating an account. Across all ages, no less than 82% of parents report being aware of their child's account creation.

Table 4. Mean age when child joined Facebook, and parental awareness and assistance of account creation (among parents who report child with Facebook account, N=506).

	Child's Current Age				
	10	11	12	13	14
Mean age child joined Facebook	8.9	10.0	11.1	12.1	11.7
Parent was aware when child signed up	95%	88%	82%	82%	88%
Parent helped create the account	78%	68%	76%	60%	47%

Furthermore, many parents reported that they helped their children create their accounts. Among the 84% of parents who were aware when their child first created the account, 64% helped create the account. Among those who knew that their child joined below the age of 13 – even if the child is now older than 13 – over two-thirds (68%) indicated that they helped their child create the account. Of those with children who are currently under 13 and on Facebook, an even greater percentage of parents were aware at the time of account creation. In other words, the vast majority of parents whose children signed up underage were involved in the process and would have been notified that the minimum age was 13 during the account creation process.

While Table 4 presents the average age at which children currently 13 and 14 first signed up for Facebook, it does not make clear what percentage of them joined at an age when they did not yet meet the site's minimum age requirement. Table 5 presents those figures showing that over half of 13-year-olds joined while underage and a third of 14-year-olds did so. In order to gain access to Facebook, all of these children had to lie about their age in order to meet the site's requirement.

Table 5. Percentage of Current 13s and 14s Who Joined Before 13

	Current Age: 13 N=248	Current Age: 14 N=110
Joined before age 13	56%	33%
Joined at age 13 or later	44%	67%

To put underage participation in context, it is helpful to look at what proportion of parents who helped their underage child sign up for Facebook were aware that Facebook has an age requirement. Just over half (53%) of all surveyed parents think

there is a minimum age for Facebook use. Those who helped their child create an account below the age of 13 would have been notified of this. Of those parents who reported that their child joined Facebook underage and that they helped create their child's account, most (90%) also reported that Facebook had a minimum age. This suggests that lack of parental awareness regarding the minimum age cannot alone explain the frequent violation of the Terms of Service.

Among the parents who believe that there is a minimum age for Facebook, only 45% know that the minimum age is 13. The other two most popularly reported ages – 16 and 18 – are notable in an American context because they are the driving age in many states and the "age of majority" where citizens receive additional freedoms and opportunities, including the right to vote (see Table 6 for details).

Table 6. Parents' perception of Facebook's minimum age requirement (among the 53% who recognize that there is a minimum age requirement, N=536).

Perceived Minimum Age for Facebook	Percent
<10	2.5%
10	1.8%
11	1.8%
12	4.2%
13	45.5%
14	9.4%
15	7.1%
16	10.1%
17	.7%
18	16.3%
>18	.6%

Many parents know that their child joined Facebook when they were younger than what these parents believe to be the minimum age for use of the site. Almost three quarters (74%) of parents whose child is on Facebook and who reported a minimum age knew that their child was on Facebook below what they believed the minimum age to be.

One explanation for this is that parents do not necessarily see the minimum age as a requirement. We asked those who reported that Facebook had a minimum age (53%) whether or not Facebook's minimum age was a recommendation or a requirement. Although Facebook's minimum age is a requirement, just over a third (35%) of those who reported that there was a minimum age believed the minimum age to be a recommendation.

In order to understand better why parents thought that there was a minimum age restriction, using an open-ended question, we asked those who said as much why they thought Facebook had a minimum age. While the most common answer given corresponds to "I don't know," we received a wide variety of other explanations,

including "because it's more for adults," "children don't need to have a social media presence", "due to adult content and language", and "to protect minors from perverts." A small fraction of the parents surveyed did refer to legal or liability issues, but adult content or sexual predators were often also referenced when legal issues were addressed (e.g. "for liability reasons and adult content" or "legal purposes to defend itself against perverts who are surfing the web looking to lure children"). Only two parents referenced privacy. Amidst the open-ended responses, the notion of maturity or age appropriateness came up frequently. Some parents highlighted maturity with respect to content; others referenced maturity with respect to safety issues like bullying and strangers.

A second explanation could be that parents think that it is acceptable for children to violate ToS requirements that restrict access based on age. Indeed, over three-quarters (78%) of parents believe that there are circumstances that make it okay for their child to sign up for a service even if their child does not meet the site's minimum age requirement (see Table 7). These reasons include communicating with parents, other family members, and friends; use of the service for educational purposes; and because the child's classmates use the service. While parents could indicate multiple reasons for which they would allow their children to violate age restrictions, half of parents (50%) indicated that their child could violate the restriction only if under parental supervision. In other words, many parents felt as though the violation was acceptable because they were monitoring their children's online practices.

Table 7. Parents' willingness to allow their child to create an account in violation of the minimum age requirement (N=1,007).

Are there any situations where you would allow your child to create an account on an online service if your child was younger than the service's age limit?	
Yes, for any listed reason (net)	78%
Yes, for educational or school related purposes	54%
Yes, to communicate other family members	48%
Yes, to communicate with me	47%
Yes, to communicate with friends	22%
Yes, because their classmates use the service	9%
Yes, but only under supervision	50%
No, I would never allow it	22%

Not surprisingly, those parents whose children are on Facebook in violation of the minimum age requirement are more comfortable with their child creating an account in violation of the age restrictions than those whose child is not in violation or not on Facebook (see Table 8).

Table 8. Parents' beliefs about whether there are circumstances under which it is okay for their child to sign up for a service for which they do not meet the age requirement, broken down by whether the child uses Facebook and whether the child joined Facebook in violation of the site's Terms of Service (N=1,007).

Are there situations in which child could create an account if under age?	Child joined Facebook when under minimum age (N=363)	Child joined Facebook **not** under the minimum age (N=144)	Child 10-12, not on Facebook (N=400)	Child 13 or 14, not on Facebook (N=100)
No, never	11.8%	16.7%	24.8%	27.4%
Yes (any reason)	88.3%	83.4%	75.3%	72.6%

While those parents whose child joined Facebook under the minimum age are overwhelmingly (88.3%) amenable to their child violating the minimum age requirements, not all of these parents know that there is an age requirement. Of parents who know that their child is on Facebook in violation of what they believe to be the minimum age, almost all (96%) identify situations in which they believe that it is acceptable for children to violate age restrictions. In other words, almost all parents who know that their child is violating minimum age restrictions believe such violations are acceptable.

Not all parents know that Facebook has a minimum age requirement, but among those who do know this and know that their child is violating those minimum age requirements, many are complicit in the violation and believe that it is acceptable for children to violate the Terms of Service in order to get access. This suggests that the ToS restriction is neither an acceptable nor desirable barrier when parents allow their children to join Facebook.

Parents' Attitudes About Minimum Age

The idea of a minimum age is not wholly problematic for parents. While only 53% of parents believe that there is a minimum age (as discussed above), most (89%) parents stated that they believe that there "should" be a minimum age for Facebook use. Of the 89% who believe that there should be a minimum age, the average age that they suggest is 14.9, which is considerably higher than the current minimum age (13). Interestingly, this age is also higher than what these same parents suggest is an appropriate age for a child to join Facebook: 14.0. (Recall that we asked all survey participants what they thought was the age at which a typical child should

have access to Facebook and then later inquired what those parents who thought there should be a minimum age thought the minimum age should be.) In other words, the age that parents think is appropriate for a child to join Facebook differs from what they believe the minimum age should be.

Notably, the 11% who do not think that there should be a minimum age believe that the appropriate age for a child to join Facebook is, on average, 11.6, suggesting that there is a variance in attitudes regarding appropriate ages more generally.

Differences in perception of appropriate age are most notable when we examine parents' practices regarding their own children. Perhaps not surprisingly, parents whose children joined Facebook in violation of Facebook's Terms of Service with respect to the minimum age requirement have the lowest average (12.4) when it comes to the age at which they believe a typical child should be able to sign up for an account (see Table 9 for details). The average is higher (13.2) for those whose children use Facebook, but did not violate the Terms of Service when they signed up followed by those whose children are under 13 and are not Facebook users (13.9). The appropriate age for a typical child to sign up was highest (14.2) among the group of parents whose children are 13 or over and are not on Facebook despite being able to use the service legally.

Table 9. Parents' perception of appropriate age for a typical child to join Facebook (N=1,007).

	Child joined Facebook when under minimum age (N=363)	Child joined Facebook **not** under the minimum age (N=144)	Child 10-12, not on Facebook (N=400)	Child 13 or 14, not on Facebook (N=100)
Appropriate age for a typical child to join Facebook	12.4	13.2	13.9	14.2

Even among the 89% who believe that there should be a minimum age for Facebook, we see wide variation in parental attitudes about what that minimum age should be as dependent on what they report to be their child's practice with regard to Facebook (see Table 10). Once again, we see a progression depending on whether or not a parent's child uses Facebook and whether or not the child violated the minimum age requirement.

Table 10. Parents' perception of what the minimum age should be to join Facebook among parents who think there should be a minimum age for Facebook (N=892).

	Child joined Facebook when	Child joined Facebook **not**	Child 10-12, not on	Child 13 or 14, not on

	under minimum age (N=287)	under the minimum age (N=131)	Facebook (N=384)	Facebook (N=89)
Appropriate minimum age for Facebook	13.8	14.7	15.0	15.4

How can we reconcile that the minimum age requirement parents suggest is higher than what they believe to be an appropriate age for a typical child to create an account on Facebook? One possibility is, as we noted above, that parents think that the minimum age should be a recommendation, but not a requirement. This would especially make sense in light of parental willingness to allow their children to violate age restrictions imposed by Terms of Service (Table 7).

Parents' Attitudes About Regulation

Overwhelmingly, parents believe that they should have the final say about what their child can do online. When asked who should have final say about whether or not their child should be able to access online services, 93% of parents indicated that they themselves should (Table 11).

Table 11. Parents' opinion about who should decide whether or not a child can access websites and online services (N=1,007).

Who should have the final say about whether or not your child should be able to use websites and online services?	
Parents	93%
Company providing the service	3%
Government	2%
The child	2%
Other	1%

While parents overwhelmingly believe that they should have final say when asked specifically about their own child's access, they are more conflicted when talking about general practices. For example, when asked to choose between whether companies should have minimum age restrictions or whether parents should be able to make their own decisions, respondents were split 50/50.

Parents are indeed concerned about the issues that COPPA was designed to address. Over three quarters (78%) are extremely or very concerned that their child might meet a stranger online who intends to do harm while close to half (44%) are extremely or very concerned that their children might have information used about them for the purposes of personalized marketing or targeted advertising. Although parents are concerned about online safety, only 1% reported that any of their children have ever met a stranger online with ill intentions. Likewise, only 9% of parents report that their children's data have been used for marketing and

advertising. It is important to acknowledge that many adults do not realize how targeted marketing uses demographic and behavioral data (Hoofnagle & King, 2008). Given the prevalence of these techniques, it is likely that most social media users have had their data used for marketing and advertising even if they do not know it. Given how few parents believe their children's data have been used for marketing and advertising, it is likely that parents are either unaware of how these techniques work or they imagine a different aspect of marketing when they report their concerns regarding personalized marketing and targeted advertising.

Although parents want to protect their children, they are not looking for mandatory age restrictions as the solution to their concerns about safety and privacy. When forced to choose between three possible approaches to keeping children safe online, most parents (59%) preferred that the focus be on greater parental involvement as compared to educating children about online safety (29%) and restricting children's online access (12%) (Table 12).

Table 12. Parents' opinion about the focus of online safety efforts (N=1,007).

Which should be the primary focus of efforts to keep children safe online?	
Getting parents involved in children's online activities	59%
Educating children about online safety	29%
Restricting children's access to online services	12%

Even when the focus is on data collection, parents are not uniformly in favor of restrictions on what information social network sites can collect about children. While 57% would prefer restrictions, even if it means that children in general will be banned from social network sites, 43% think that parents should get to choose, even if it means that these sites and services can collect data.

Although COPPA does not force companies to restrict access, it is important to understand how parents would feel if the government were to provide age-based restrictions on access. Parents are especially conflicted about the role of government in limiting access based on age. When given options, parents do not prefer that the government create age restrictions. When forced to choose between different potential governmental roles in the matter, two thirds want the government to be involved, but more often to make recommendations for parents rather than by enacting laws that result in age restrictions (Table 13).

Table 13. Parents' views about governmental involvement in setting age limits on the use of websites and online services (N=1,007).

The government should require all websites and online services to provide a recommended age rating, similar to movie ratings like PG/PG-13, to help parents determine when their child is ready to use these services, but the government should not require a minimum age for use.	48%
The government should not play a role in determining how websites and	35%

online services address children's use of their services; this should be between parents and the websites and online services.	
The government should enact laws that protect children by requiring a minimum age for use of websites and online services.	18%

What is clear here is that parents prefer governmental policies that provide information or guidance over policies that create restrictions. That said, there are still many (35%) parents who do not want the government involved in any way.

Discussion: The Efficacy of COPPA

The Children's Online Privacy Protection Act does not force companies like Facebook to restrict access to children under the age of 13. Rather, it seeks to make certain that parents are informed about website data collection policies and have choices and tools to express their preferences when sites want to collect data about their children. Providing parents with greater opportunities to communicate, collaborate, and learn about online safety and privacy with their children are worthy goals and our data support the idea that most parents believe that they should have final say about what their children can and cannot do.

Rather than providing parents and children with greater options for controlling the use of youth personal information as they expand their online activities, it appears that in many circumstances, COPPA has encouraged limitations on children's access to online services as a tradeoff for protecting their privacy and safety. In response, parents are, in fact, taking matters into their own hands to circumvent these restrictions; however, they do so at the cost of their children's privacy and at the risk of acting unethically and potentially in violation of the law. Our data show that the majority of parents think it is acceptable for their children to violate access restrictions if they feel as though doing so furthers their children's educational objectives, enables family communication, or enhances their children's social interactions. Furthermore, while many parents are open to advice from the government, less than a fifth want the government to enact laws that create access restrictions.

When sites like Facebook respond to laws such as COPPA by restricting access for under-13 children – and, thereby, prohibit children from creating accounts – parents and children are forced to circumvent these prohibitions and forgo the privacy and safety benefits of COPPA if they wish to regain control over their online opportunities. These benefits include the option for parents to audit and delete their children's data. While in some ways this may encourage greater collaboration between parents and children (after all, few things are more powerful combining agents than a common obstacle), this was not the intended consequence of COPPA.

Moreover, parents who want their children to have access to these online services must support their children in publicly deceiving others, creating parenting conflicts

among those who wish to encourage honesty. Although adults have been known to provide inaccurate information in online profiles when they want to impress strangers (Ellison, Hancock, and Toma, in press), parents do not necessarily want their children to be encouraged to lie online. Providing inaccurate age information can also violate websites' Terms of Service and enable risky interactions. Parents of elementary- and middle-school-aged children may not want their children to pretend as though they are in high school when interacting with other teenagers and, yet, providing a false age on Facebook conveys this incorrect impression. Because of this, strict age requirements often put parents in an uncomfortable position. So long as deception is the only means of access, parents are forced to choose between curtailing their children's access and condoning lying. This is not an easy choice for many parents to make.

Age Restrictions and the Issue of Maturity

In general, parents do not understand the relationship between Facebook's minimum age requirement and COPPA. Of the parents – approximately half of the sample – who knew that Facebook has a minimum age, only a third realized that this was a requirement and not a recommendation. Given the frequency with which parents who knew there was a minimum age referenced issues of age appropriateness or maturity in an open-ended question – and given explanations we heard in qualitative work done as a pilot for this study – one explanation may be that parents see age restrictions as a form of a maturity restriction or a type of maturity rating.

Parents often encounter age-based restrictions that are culturally understood as being about maturity. For example, each state has a minimum age for children to obtain a driver's license and the national minimum drinking age for alcohol has been solidified at 21 for several decades. Although these legal statutes are widely recognized, not all children abide by them. It is not uncommon, especially in rural areas, for children to learn to drive underage and a 2009 study found that 72.5% of high school students had drunk some alcohol (Eaton et al., 2009). Although it is unclear to what degree parents are complicit in helping their children violate these age restrictions, anecdotal evidence seems to suggest that many parents are aware of such violations. Such issues call into question the efficacy of and cultural commitment to age-based legal restrictions.

Parents also regularly encounter recommended maturity ratings, especially in relationship to media content. Movie ratings are perhaps the most widely recognized rating system, but there are also rating systems for TV, music, and video games. Maturity ratings were devised by various content industries – often under regulatory pressure – to help guide parents into making wise decisions. For example, the film industry created the Classification and Rating Administration (CARA) to administer voluntary motion picture ratings along the lines of G, PG, PG-13, etc. (Mosk, 1997). More informal programs like Common Sense Media's

"Reviews and Ratings" offer valuable age appropriateness information about a wide array of content, alongside detailed descriptions of what parents should know. Although maturity ratings are deployed and implemented by industry, parents may not realize that these ratings are not governmentally mandated. During pilot interviews conducted for this project, we were surprised to learn that many parents viewed movie ratings as a legal requirement, not just a recommendation that is privately enforced by theater management.

Our data show that many parents believe that online age restrictions are either a recommendation or a requirement that can be circumvented. It is not clear whether they see such restrictions as more akin to the legal minimum age for alcohol or more like the guidance of a movie rating, nor is it clear whether or not parents are able to differentiate between the two different types of restrictions. But given the verbatim comments offered by parents, our data suggest that parents see 13+ restrictions online as being connected to children's maturity, suggesting that future research is needed to unpack the role of maturity in parental models of technology access.

Adolescent development is not a linear process, and while there is generally a notable difference in maturity between an 8-year-old and a 17-year-old, the difference between a 12-year-old and a 13-year-old is much more arbitrary. The parents we surveyed recognized differences in maturity among children of the same chronological age. Yet, there is a long history in the United States of regulating children's rights, opportunities, and activities strictly by age (Chudacoff, 1992). While COPPA never intended to create a stark distinction between 12-year-olds and 13-year-olds with respect to online access, companies' restrictions in light of COPPA did precisely that, reinforcing the notion that there is a magical age at which everything changes.

Protection vs. Access

Our data also reveal that parents do not want to be forced to trade protecting their children's privacy or safety against limitations on what online sites their children can access. Parents are clearly concerned about the risks and dangers that their children may face online even if they are simultaneously allowing them to lie about their age to get access. Over half of parents we surveyed believe that technology makes being a good parent more challenging. But this does not mean that they want to have their control as a parent undermined. Even on the hot-button issue of child safety, over half of parents preferred an emphasis on better mechanisms for getting parents involved in the issue while only about a tenth wanted the focus to be on restricting access for children.

While some parents may wish for online services to have minimum ages, their practices and attitudes also suggest that they want to have the ability to circumvent those restrictions, even if it means that these sites can collect data on their children. Many are open to recommended minimum ages, but that does not mean that they

want the government to step in and place restrictions on access for younger
children, even if to protect those children. Resolving these seemingly contradictory
desires by parents requires recognizing that almost all parents want to have final
say about what takes place in their homes and with regard to their children, no
matter how well-intended a legal or corporate policy is.

This suggests that, when it comes to online privacy and safety issues, parents are
not interested in approaches that lead to curbing children's access but rather in
approaches that provide more support for their involvement in children's decision-
making process while treating access as a given.

Can COPPA be fixed?

COPPA's approach to privacy depends on two main premises: (1) that parents will
be able to give sites informed verifiable consent regarding data collection practices,
and (2) that age-based privacy protections are both appropriate and achievable. Our
data suggest that this second premise – relying on age-based models – is producing
unintended consequences that undermine COPPA's goals. In response, we propose
that policymakers shift away from privacy regulation models that are based on age
or other demographic categories and, instead, develop universal privacy protections
for online users. This would avoid creating an environment where service providers
like Facebook have incentives to "divide and conquer" populations in terms of
privacy and data collection policies. This would not only eliminate the problems
with age-based prohibitions and circumventions, but also provide increased privacy
protection to both teens and adults. As modern online data collection and
advertising practices become more complex, it is not just children who need
protections (Hoofnagle, King, Li, and Turow, 2010; Hoofnagle and King, 2008;
Montgomery and Chester, 2009).

Furthermore, given many parents' openness to recommendations, it might be useful
to develop mechanisms to provide parents with recommendations about the
appropriateness of various sites for children of different ages and the various risks
that users may face. Our findings show that parents are indeed concerned about
privacy and online safety issues, but they also show that they may not understand
the risks that children face or how their data are used. Greater transparency and
increased information flow can help parents make appropriate decisions.

Conclusion

Our findings call the efficacy of COPPA into serious question.   The data also point to
unintended consequences of the COPPA model of regulation of web-based services.
The online industry's response to COPPA's under-13 rule and verifiable parental
consent model is largely proving incompatible, and at times, antithetical to many
parents' ideas of how to help their children navigate the online world. Instead of
providing more tools to help parents and their children make informed choices,

industry responses to COPPA have neglected parental preferences and have altogether restricted what is available for children to access. As a result, many parents now knowingly allow or assist their children in circumventing age restrictions on general-purpose sites through lying. By creating this environment, COPPA inadvertently hampers the very population it seeks to assist and forces parents and children to forgo COPPA's protection and take greater risks in order to get access to the educational and communication sites they want to be part of their online experiences.

Legislative or regulatory solutions that seek to "update" COPPA must confront this paradox and these fundamental flaws in its design. As long as the emphasis of the regulatory approach remains on age-based cutoffs and onerous consent mechanisms, it is likely that general-purpose websites will continue to block access to anyone under the age cutoff. In response, parents who wish for their children to participate on such sites will continue to assist their children in deceptively circumventing such restrictions. This is neither a solution to privacy and online safety concerns nor a way of empowering parents.

Increased enforcement efforts, either through governmental actions or Terms of Service crackdowns, will only further upset parents and potentially increase legal risks resulting from the acts of circumvention they undertake. Legislative efforts to increase minimum age requirements or strengthen age verification will complicate and increase the cost to companies of compliance, further encouraging them to focus on denying access rather than providing privacy protection or cooperating with parents. Again, this neither empowers parents nor helps youth. Conversely, such efforts would serve to position the government as "in loco parentis," thereby undermining parental rights and freedoms. Not only would an "in loco parentis" framework run counter to most parents' desires, but it would also undermine the very goals of COPPA: providing parents with additional information and options.

Parents are concerned about children's safety and privacy, and governmental agencies have every reason to want to step in and help, but restricting access – or creating regulatory solutions that encourage companies to restrict access – is counterproductive. New solutions must be devised that help limit when, where, and how data are used, but the key to helping children and their parents enjoy the benefits of those solutions is to abandon age-based mechanisms that inadvertently result in limiting children's options for online access.

Biographical Statements

danah boyd is a Senior Researcher at Microsoft Research and a Research Assistant Professor in the Media, Culture, and Communication Department at New York University. She is also a Visiting Researcher at Harvard University's Law School. For more information on her work, see: http://www.danah.org/.

Eszter Hargittai is Associate Professor in the Communication Studies Department and Faculty Associate of the Institute for Policy Research at Northwestern University where she heads the Web Use Project. She is also Fellow at Harvard's Berkman Center for Internet & Society and in Fall 2011, a Visiting Professor in the School of Humanities and Social Sciences at the University of St. Gallen in Switzerland. For more information about her work, see http://www.webuse.org.

Jason Schultz is the Director of the Samuelson Law, Technology & Public Policy Clinic at the University of California-Berkeley where he is also an Assistant Clinical Professor of Law. For more information about his work, see http://www.law.berkeley.edu/php-programs/faculty/facultyProfile.php?facID=5599

John Palfrey is the Henry N. Ess Professor of Law and Vice Dean for Library and Information Resources at Harvard Law School. He is also a faculty co-director of the Berkman Center for Internet & Society. For more information about his work, see http://cyber.law.harvard.edu/people/jpalfrey.

Notes

1. As part of her research on teen social media engagement from 2005-2008 (boyd, 2008) and again, from 2009-2010, danah boyd asked parents about their understanding of age restrictions. In May 2011, danah boyd and Alex Leavitt conducted semi-structured interviews with four parents and informally polled many others specifically about issues related to this paper.

2. ComScore did acknowledge that some of those visitors may be children who do not have accounts.

3. For an analysis of the various challenges associated with age verification, see a report by the Internet Safety Technical Task Force (2008).

4. To access public comments on the 2005 and 2010 COPPA reviews, see: http://www.ftc.gov/os/comments/COPPARuleAmmend/Index.htm and http://www.ftc.gov/os/comments/copparulerev2010/index.shtm

5. Throughout this article, we refer to the parent or guardian who answered the survey as the parent.

6. We excluded parents working in the software industry so as not to bias toward people who may be more familiar with the issues at hand.

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