

Parents' and Teens' Perspectives on Privacy In a Technology-Filled World

Lorrie Faith Cranor, Adam L. Durity, Abigail Marsh, Blase Ur
Carnegie Mellon University
{lorrie, adurity, acmarsh, bur}@cmu.edu

ABSTRACT

The life of a teenager today is far different than in past decades. Through semi-structured interviews with 10 teenagers and 10 parents of teenagers, we investigate parent-teen privacy decision making in these uncharted waters. Parents and teens generally agreed that teens had a need for some degree of privacy from their parents and that respecting teens' privacy demonstrated trust and fostered independence. We explored the boundaries of teen privacy in both the physical and digital worlds. While parents commonly felt none of their children's possessions should ethically be exempt from parental monitoring, teens felt strongly that cell phones, particularly text messages, were private. Parents discussed struggling to keep up with new technologies and to understand teens' technology-mediated socializing. While most parents said they thought similarly about privacy in the physical and digital worlds, half of teens said they thought about these concepts differently. We present cases where parents made privacy decisions using false analogies with the physical world or outdated assumptions. We also highlight directions for more usable digital parenting tools.

1. INTRODUCTION

In the last twenty-five years, the daily life of a teenager has changed drastically. When the parents of today's teenagers were themselves teens, they had no smartphones connecting them to resources across the globe in an instant. In fact, except in rare cases, they had no mobile phones at all. Twenty-five years ago, teenagers only had access to the Internet at college or via Prodigy, Compuserve, or AOL. Stanley Milgram was the king of social networks; Mark Zuckerberg was just starting elementary school. Photos were developed in a darkroom or on Polaroid film, not Snapchatted.

While parenting has always been tough, these rapid shifts in technology create additional challenges for today's parents. Teenagers are more likely than their parents to understand popular technologies, services, and devices. They are also likely to socialize with friends using these technology-

mediated channels. As a result, parents cannot necessarily draw from their own teenage experiences when making decisions about privacy for their children.

In this paper, we investigate how parents make decisions about privacy for their teens in a world that is far different than the one in which they came of age. We focus on parents' privacy decision making, as well as both teens' and parents' perspectives on the degree to which teenagers should have privacy from their parents. Through interviews, we explored four main research questions about teen privacy:

1. From teens' and parents' perspectives, what are the bounds of teens' right to privacy from their parents?
2. How do parents decide how much privacy teens should have when they use new technologies and services?
3. How do parents use parental controls, monitoring software, and ad-hoc approaches regarding teen privacy?
4. How do parents' approaches to privacy in the digital world compare to those in the physical world?

To investigate these research questions, we conducted semi-structured interviews with ten teenagers and ten parents of teenagers. Interviews covered teen privacy in the familiar physical world (e.g., closed doors and dating), in the technology-mediated digital world (e.g., smartphones and social media), and from a philosophical perspective. We focused our questions and analysis on privacy in the digital world and on parents' decision making process, using privacy in the physical world and on a philosophical level to contextualize attitudes about privacy in the digital world.

We found that most of our parent and teen participants agreed that teens should have privacy from their parents, albeit to a limited extent. This right to privacy derived from factors like trust and the desire to foster independence, but was limited by reasons including parental concern and safety. In the physical world, parents generally gave teens some degree of private space at home and in their social lives, such as by knocking before entering a bedroom.

In contrast to parents, teenagers viewed their cellphones, especially text messages stored on their cell phones, to be particularly private. Eight of the ten teens, versus four of the ten parents, felt it unethical for parents to look through teens' text messages. Teens were far more comfortable with their parents accessing their email accounts or Facebook, both of which they used rarely.

We unpack parents' processes for evaluating and regulating their children's privacy, finding that parents largely struggle to make these decisions. In particular, our parent

Copyright is held by the author/owner. Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee.

Symposium on Usable Privacy and Security (SOUPS) 2014, July 9–11, 2014, Menlo Park, CA.

participants often did not understand teens' use of technologies that did not exist when the parents were themselves teens. While half of the teen participants said they think about privacy in the digital world differently than in the physical world, only two parents distinguished between these scenarios. Even though most parents wanted to give their teens private space, they did not always realize the degree to which teens' private spaces are text messages and apps.

Our results aid in understanding the complex issue of privacy as teenagers transition from dependent children to independent adults. This understanding can inform designers of software tools that directly or indirectly impact teen privacy. We discuss the shortcomings of existing digital parenting tools; we also speculate on directions for designing tools that better remind teenagers of their parents' expectations and help parents navigate the complex process of making decisions about their children's privacy.

2. BACKGROUND

Privacy is a complex concept that means different things to different people. Over a century ago, Warren and Brandeis discussed privacy as the "right to be let alone" [30]. In more modern interpretations, Helen Nissenbaum explained privacy through the idea of contextual integrity [16], while Daniel Solove proposed that privacy is best examined as a family of related concepts [22] and that privacy can be both an individual and a societal good [23].

Privacy as a legal right is even more complex. Privacy laws in the United States are sectoral, varying by industry. While several amendments within the U.S. Bill of Rights have been interpreted as providing some baseline privacy protections to United States citizens [24], most U.S. privacy laws are enacted to address specific concerns. The state of privacy protection in practice, however, often differs from the laws on the books [1]. In many cases, individuals can have de facto rights through social norms and beliefs. This difference between legal definitions and practice is particularly relevant to teenagers because teenagers have few legal rights to privacy from their parents. In practice, however, many parents do give teenagers some degree of privacy.

While the scholarship on privacy rights and laws is broad, it tends to focus on intrusions on individuals' privacy by the government or corporations. Far less has been written about privacy between individuals, and more specifically the aspect of privacy examined in this paper: the privacy beliefs and expectations between parent and teenager, especially in regards to digital space. Researchers who study teenagers and technology [12, 18, 32] have identified a surprising lack of studies investigating the role privacy plays in parent-teen relationships, and vice versa.

Marwick et al. surveyed the literature on youth and privacy [12]. They note the particular importance of studying teen privacy relative to technology since much of teens' socialization is mediated by technology. They also highlight findings that teens care deeply about privacy, particularly from parents and teachers [12]. boyd's recent book synthesizing years of fieldwork discusses the privacy dynamic between teenagers and parents [2]. She found that teenagers are quite concerned about having privacy from their parents and that parents rarely grant teens privacy without teens negotiating for it. She asserts that even well-intentioned parents "often...fail to realize how surveillance is a form of oppression." Whereas teenagers are boyd's primary subjects,

we split our investigation equally between parents and teens. Recently, Ur et al. [27] interviewed both teens and parents in the more narrow context of home security systems with audit logs. They found that such Internet-connected home technologies have the potential to harm teen privacy while at the same time improving home security.

Researchers have also investigated teen privacy from parents' perspective. In her book on modern parenting, Nelson notes the hypocrisy of some parents in monitoring their teenagers while at the same time stating that they believe teens have a right to privacy [15]. Petronio describes ways in which parents invade their children's privacy, as well as teens' reactions ("children's defensive behaviors") to these invasions of privacy [17]. She notes that parents' and teens' divergent expectations of independence may cause conflict, yet did not explore the gap between parents' and teens' perspectives on teen privacy in any detail. Hawk et al. also found teenagers' perceptions of parental privacy invasion causes conflict, yet the magnitude of conflict differs by family [8]. However, they note that parent-teen conflict sometimes plays a positive role in adjusting parents' expectations.

Synthesizing recent psychology research, Smetana et al. points out that parents often adjust their parenting styles and attitudes for their different children [21]. Yardi and Bruckman also note that a particular child's maturity is a major factor in parents' decisions [32]. In separate work, Smetana found that parents generally reduce the extent to which they monitor their children as the children progress through adolescence [21].

While some parents monitor their teens closely, other parents prefer not to monitor teens at all [32]. Rode conducted in-home studies of twelve households with children, identifying five major strategies parents use to enforce rules about technology [18]. Some participants actively chose to use software tools to monitor teens' activities, while others preferred to talk with their children about safe behaviors. Metzger et al. explain that parents' differing opinions of teens' right to privacy, as well as the trust in the parent-teen relationship, led the parents they studied to reach different conclusions about the ethics of parental monitoring [14].

Parental monitoring sometimes leads children to share less information with parents. This phenomenon has been documented in traditional disclosure settings, such as conversation [8], but also on social media [9]. Teens' voluntary disclosure of information depends heavily on having a positive relationship with their parents [20]. Livingstone and Bober argue that strict monitoring can "undermine the democratic negotiation of mutual rights, trust and responsibilities between parents and children" [10].

Researchers have also investigated the adoption, as well as the non-adoption, of technologies parents can use to monitor their children. Vasalou et al. conducted a survey of 920 parents to understand why so few parents adopt technologies for tracking their children's location [28]. Many of their participants felt such systems could negatively impact their children's independence, suggesting that parents did feel that children have a right to privacy from their parents. Reaching similar conclusions, Czeskis et al. applied Value Sensitive Design to a series of parental monitoring scenarios, suggesting that context be taken into account when parents are deciding whether or not to monitor their teens [6]. Based on their analysis, they suggested that teens could have privacy from their parents except in the case of emergency.

In recent years, social media sites have become a battleground for teenagers’ privacy from their parents. Although 80% of parents who used social media had friended their teenager on a social media site, many teens were uncomfortable with this practice [11]. Child and Westermann conducted a 235-participant survey related to parental Facebook friend requests, finding that teenagers generally accepted these requests out of obligation without making substantial changes to privacy settings [5]. In contrast, Cheng found that teens use a number of creative strategies to protect their online privacy, such as temporarily deactivating their Facebook account except when they decide to log in [4]. Forte et al. found that many high school students self-censor and maintain different social networks on different sites [7].

Teens are often more tech-savvy than their parents, leading parents to feel outmatched when attempting to monitor their children [25]. Wisniewski et al. conducted semi-structured interviews with ten pairs of parents and teens. Among their findings was that parental ignorance of technology could impede the parent’s ability to engage meaningfully in the teen’s online activity [31].

In contrast to much of this past work investigating teen privacy, we adopt a structured methodology that equally investigates the perspectives of teenagers and parents of teenagers. We rely on both perspectives to understand how parents make decisions about their children’s privacy in a world that is far different from the one in which they came of age. We also document the extent to which our participants believe that teens have a de facto right to privacy from their parents in the absence of legal rights to privacy.

3. METHODOLOGY

We conducted semi-structured interviews with 20 participants: 10 teenagers and 10 parents of teenagers. Our study was approved by the Carnegie Mellon University Institutional Review Board.

3.1 Recruitment and Confidentiality

We recruited participants in and around Pittsburgh, PA by advertising a study on “privacy attitudes” at high school extracurricular activities, through word of mouth, by posting flyers, and on Craigslist. We recruited only teenagers currently attending high school (9th through 12th grade) and parents or guardians of teenagers within that range. To avoid potential biases of interviewing teens and parents drawn from different populations, we required that a teenager and a parent from each household both volunteer to participate in the study. In round-robin fashion, we then selected either the parent or the teen from each household to participate. Although interviewing a teen and parent from the same household would have been interesting, we felt that allowing other family members to know the precise topics discussed could lead to embarrassment or harm after the interview for participants, particularly teens.

Beyond interviewing only one member of a household, we took additional precautions to protect teen participants’ privacy. Our recruitment documents and consent form were intentionally vague, noting only that the interview would cover “whether or not teenagers have a right to privacy” and what such a right would entail. We avoided choosing quotes for this paper that we felt would identify particular participants. Furthermore, parents accompanying teens to the study were required to leave the interview room after completing the

consent form. The audio recordings and transcriptions were password-protected and not accessible to anyone other than the researchers and transcribers.

We conducted interviews from November 2013 to March 2014. For their participation in our one-hour interview, we compensated participants \$30 in Amazon.com credit.

3.2 Interview Procedure and Structure

Interviews were led by one researcher while at least one other researcher took notes and asked follow-up questions. The structure and topics of our interview scripts for parents mirrored those for teens. We began each interview by obtaining consent and explaining the study’s purpose.

The topics of the interview included household demographics, technology practices in the household, and the decision-making process regarding the use of new technologies. We also asked teens about their digital personal space. To contextualize a participant’s discussion about technology privacy, we also asked about each household’s practices regarding physical privacy (e.g., the privacy of a teen’s bedroom) and social privacy (e.g., parental notification when a teen goes out with friends). We concluded the interview by asking about teens’ general privacy rights. Throughout the interview, we asked follow-up “why” questions for all responses that noted a privacy attitude or privacy decision.

We iteratively adapted our interview script based on previous interviews. The appendix contains our final interview script, which we used for the final eight participants (parents P7–P10 and teens T7–T10). In our initial script, we investigated digital privacy after physical privacy and did not explicitly ask about new technologies. We restructured the interview to emphasize our interest in digital privacy practices. We also originally asked questions about privacy laws, but participants’ answers provided minimal insight into the research questions enumerated in Section 1.

3.3 Analysis

The researchers met multiple times during and after the interview process to review their notes and recollections of the interviews and to identify potential themes that warranted investigation in a more structured way during the coding process. These meetings also led to iterative updates to the questions asked in the interview in order to more fully investigate topics discussed by our earlier participants. After the final interview, the researchers met and collaboratively developed a draft codebook containing 88 codes within 15 categories based on their notes from the interviews and previous review meetings. For example, the categories of codes included reasons why teens have a right to privacy, areas of a teen’s possessions that are considered off limits, techniques parents use to monitor their teens, and analogies used to compare the physical and digital worlds.

We transcribed each interview to facilitate coding and analysis. A research assistant used the draft codebook to code all of the interviews. We instructed the coder to modify or add codes as necessary to capture anything participants mentioned that was potentially relevant to understanding privacy attitudes or decision making. Following this first round of coding, the researchers and coder met to discuss the coded interviews. The coder had added one code, while eight codes and one category were never used. Realizing that some of the codes were ambiguous in practice, we added 27 additional codes in 6 additional categories. We deleted one

category and ten codes, eight of which were never used.

Using this revised codebook of 106 codes in 20 categories, the coder went back through each interview and revised the codes. A second research assistant independently coded the interviews using the same codebook. The coders had 54% agreement (Cohen’s $\kappa = 0.53$). The relatively low agreement appears to result from the large number of codes, some of which the coders felt overlapped conceptually. The two coders met to discuss discrepancies and reached consensus on all codes. We use these consensus codes in all analyses.

3.4 Limitations

Our participants are not a representative sample of the residents of Pittsburgh or any other population. However, our participants did come from a variety of cultural and socioeconomic backgrounds. Participants’ families included teens in public, private, online, and homeschool situations.

Since we required parental consent for all teenage participants, we may have excluded teenagers whose parents were unwilling or unable to accompany their child to the interview. This restriction may have disproportionately impacted children of single parents or with troubled familial relationships. As our study was intended to obtain qualitative and anecdotal data from participants and not generalize to a larger population, we accepted this bias.

4. RESULTS

After presenting an overview of participant demographics, we contextualize participants’ privacy decisions by discussing their ideas about teens’ privacy rights. Most parent participants felt that teens deserved privacy, albeit in a limited fashion. Surprisingly, many teens agreed that teens have only a limited right to privacy from their parents.

We then summarize participants’ attitudes toward privacy in the physical world. While both parents and teens discussed providing notice before entering a teen’s bedroom, most members of both groups felt that a teen’s bedroom was not necessarily a private sanctuary. In fact, the benefits of parental laundry delivery appeared to outweigh privacy costs. However, as we detail in the subsequent section, teens considered text messages on their phones to be private, yet many parents felt it ethical for them to look through their children’s text messages. In the final section, we unpack parents’ decision-making processes, finding that in the understandable absence of technical expertise, parents made privacy decisions for their teens by drawing false analogies to the physical world or outdated concepts.

4.1 Participant demographics

We interviewed ten parents of teenagers (4 male, 6 female) and ten teenagers (4 male, 6 female). Table 1 summarizes participants’ demographics. Our teen participants included 3 freshmen, 4 sophomores, 2 juniors, and 1 senior. All children in P8’s household are homeschooled, while T3 attends high school online. The teenage residents of all other households attend traditional schools, including a mix of public, magnet, and parochial schools. We instructed parents to base their responses on their high-school-age children.

Two parent participants (P2, P3) and two teen participants (T2, T4) live in single-parent households due to divorces, while P4 is a widow. Both P5 and P6 live in two-adult households with partners who are not biological parents of the teenage children. All other participants live in

	Gender	Age	Grade	Children in household
P1	F	—	—	17/M
P2	M	—	—	14/M, 17/F
P3	F	—	—	4/M, 5/M, 6/M, 14/F
P4	F	—	—	14/F, 16/M
P5	F	—	—	12/M, 15/M
P6	M	—	—	15/M
P7	F	—	—	13/F, 15/M, 16/F
P8	M	—	—	14/M, 16/F, 17/M
P9	F	—	—	13/F, 15/M, 17/M
P10	M	—	—	12/M, 16/M, 18/F
T1	M	14	9	14/M, 16/M
T2	M	14	9	14/M
T3	F	15	10	15/F
T4	F	16	10	4/M, 13/M, 16/F
T5	F	18	12	18/F
T6	F	15	9	15/F, 17/F
T7	M	17	11	17/M
T8	F	16	10	16/F, 18/M
T9	M	16	10	16/M, 17/M
T10	F	16	11	16/F

Table 1: Study participants’ demographics. Teens are identified by T and parents by P.

two-parent households where both parents are the teenagers’ biological parents. Two households (P8 and T3) had other children who attended college and spent most of their time on campus; Table 1 does not include these non-residents.

4.2 Teens’ right to privacy from their parents

Most participants said that teens have some right to privacy from their parents. However, eight teens and eight parents expressly stated that this right is limited. Furthermore, nine teens and all ten parents indicated that parents would be justified in overriding a teenager’s right to privacy in an emergency. For example, P6 stated, “I don’t know if that is a right or not...they are not necessarily required to share everything with parents...It’s not like in the Constitution.”

A few participants expressed more rigid views of teen privacy on both ends of the spectrum. Only one teen said that teens should have complete privacy from parents. P5 was the lone parent who agreed, saying, “Anything that they’re doing in private is not really my business if they’d not want it to be, and I’m okay with that.” Conversely, P2 acknowledged that his children would be surprised “that I feel I should have complete access” to their lives.

4.2.1 Why teens have a right to privacy

Participants, even those who did not think that teens had an overall right to privacy, volunteered many reasons why teens would have a right to privacy. As shown in Figure 1, common themes were trust and teens’ inherent need for privacy. Participants also mentioned the importance of giving teens personal space, giving the teen respect, supporting the teen’s comfort, fostering a sense of responsibility and independence, and acknowledging privacy as a human right. While seven parents mentioned reflections on the parent’s own teenage years, only one teen mentioned this factor.

Ten parents and nine teens said that teens’ right to privacy derives from parent-teen trust. In a representative response,

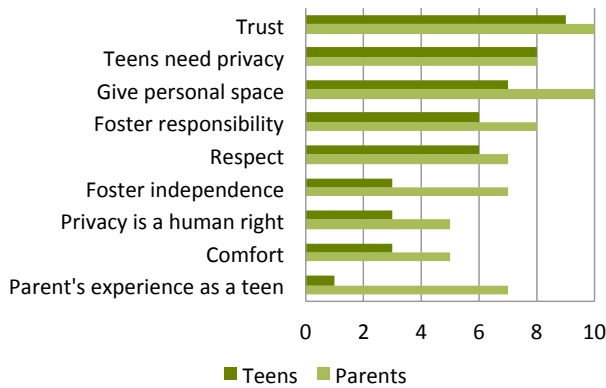


Figure 1: The number of parents and teens interviewed who mentioned each reason why teens should have privacy from their parents.

T3 said his parents respect his privacy because “they trust me a lot.” P4 discussed the importance of earning trust as a prerequisite to earning privacy, explaining, “It’s a matter of making me believe in you, making me trust you.”

Five parents and three teens said privacy was a human right deriving from dignity. Parent P5 ardently expressed this belief, saying of her sons, “Teenagers are people and everybody has the right to privacy. And just because I gave birth to them and parent them and am responsible for them, doesn’t mean that I get to control everything about their lives. Part of teenager-hood is going apart and finding your boundaries, and if I don’t let him have any boundaries separate from me, then it’s going to make it a lot harder to find his own person...It will affect his life in detrimental ways.”

Six teens and seven parents suggested granting privacy was a sign of respect. P3 tied respect to her own experience when she said, “I believe that we should give our kids certain signs of basic respect as is age-appropriate. So if I see [my daughter] is healthy and well-functioning I don’t see a need to just go into her room arbitrarily. Just like when I was a teenager I didn’t particularly like that.”

4.2.2 Why teens do not have a right to privacy

Participants also noted reasons why teens should not have privacy, as shown in Figure 2. Common reasons were a parent’s “right to know” and parents’ concerns, particularly safety concerns. Participants also said that teens have nothing to hide, teens who depend financially on a parent are obligated to share information, and that teens of a particular gender are more vulnerable and thus do not have a right to privacy. Six parents mentioned that teens in “my house” do not have a right to privacy, four parents mentioned that a parent’s own transgressions as a teenager compelled them to look into what their teens were doing, and seven parents mentioned that taking away privacy rights was important when they needed to teach their teen a lesson. Notably, no more than two teens mentioned any of those three reasons.

All but one parent and one teen concurred that parents had a right to know things about their teens because of parental responsibility. P2 felt it ethical to view his children’s devices and accounts based on his responsibility for their welfare. He explained, “You’re responsible as a parent for

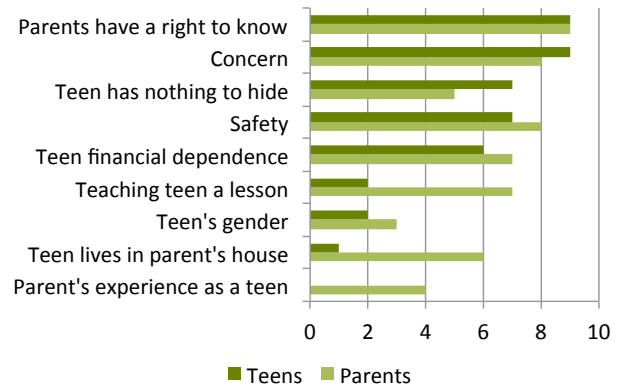


Figure 2: The number of parents and teens interviewed who mentioned each reason why teens should have limits to their privacy from their parents.

them...You need to be aware until they turn 18.” P8 stated more generally, “Teens do not have a right to privacy [because] parents are still responsible for their children.”

Seven teens, along with eight parents, expressed the need for parents to limit teens’ privacy when safety was at stake. P6 displayed reluctance to look through his son’s messages unless he was concerned about his son’s safety, saying, “I would need to really feel like that violation of his privacy was outweighed, you know, that his safety was more important.”

The question of who was paying the bills was also important in determining privacy rights. Six teens and seven parents indicated that teens’ financial dependence on their parents minimizes their right to privacy. T7, T9, and T10 all echoed that when parents pay for a teen’s education, they have a right to know how the teen is performing academically. P1 expressed dismay that FERPA would bar access to her son’s grades once he turns 18 even if she pays for his education. She said, “I think that’s wrong...If the parent’s paying for it, I want to know what’s going on.”

Financial dependence also drove the sentiment expressed by six parents that, because teens live in houses owned by their parents, they have fewer privacy rights. T8 said, “It’s their house, so they can do what they want.” Similarly, P2 expressed his right to enter any room in his own home: “It’s my house...If I need to go in there, I’m gonna go in.”

4.2.3 The boundaries of privacy rights

Nearly all parents noted boundaries to teenagers’ privacy rights, often explaining that these boundaries are fluid. P6 wrestled with these limitations: “I will do my very best to honor [my son’s] privacy, but if at the end of the day I need to do something that violates [his] privacy because I feel like it’s the right thing to do...then I will violate the shit out of his privacy...That’s my responsibility as a parent.”

P4 explained the difficult balance between privacy and control: “At one point [my son] called me controlling. I don’t think I’m controlling. I think I’m protective.” She expressed her struggle by saying, “I wanted to...not be controlling, but I still wanted to have some control.”

Some parents noted areas as expressly permissible for parents to access. Both parents and teens commonly noted grades in school as non-private. P7 was dismissive of teens

keeping grades private: “Grades? No, that’s not privacy to me.” Many teens noted that their schools automatically shared grades with parents and that they had neither the ability nor the right to keep grades private from parents.

Parents also noted situations they would consider violations of their children’s privacy. P2 said, “If my daughter likes some boy at school and she doesn’t want to share that with me, that’s fine.” Similarly, P5 described why looking through her sons’ digital files was inappropriate: “I don’t think there’s any reason to. I mean, if the teenager agrees to it, but only then. And that’s often questionable because I think it can be very easy to coerce them into agreeing.”

While many parents reserved the right to override teens’ privacy rights, our interviews suggest they do so infrequently in practice. Asked whether she has the right to read her daughter’s correspondence with friends, P3 said, “I do, but just because you have the right to do something doesn’t mean that it’s morally the right thing to do.”

4.2.4 Age, maturity, finances, and college

Participants noted that privacy rights are not static. They commonly felt older teens should have different boundaries and privacy expectations. Privacy rights evolved based on age, maturity, financial independence, and starting college.

Privacy rights increased with age according to seven teens and all ten parents. P2 described how his practices changed as his children grew older: “I, as time went on...allowed them to make their own choices.” Six parents and six teens also mentioned maturity. P7 explicitly distinguished maturity from age, saying, “It really depends on the maturity of the kids. And not necessarily the age.”

Participants had nuanced views around privacy changes when teens turned 18, the legal start of adulthood in the United States. T5 acknowledged the legal boundary at age 18, saying, “I think when you turn 18, your parents even owe it to you in a way to give you more responsibility.” P4 also acknowledged this boundary, saying, “He’s going to be eighteen, so I don’t really have any say at that point.” However, she also lamented, “I think eighteen is young.” Surprisingly, few parents or teens expected that teens should obtain full privacy rights on their eighteenth birthday.

Six teens and eight parents cited increasing financial independence as a factor impacting privacy rights. P4 indicated that she would give her son more privacy when he started financing his own phone: “At some point he’s going to pay for his own phone and stuff, and...there should be trust there so I shouldn’t have to look at it.”

4.3 Privacy in the Physical World

Parents were generally willing to carve out private space in the physical world for their children. Privacy in the physical world did have its limits, though. P1 directly addressed the superficial tension between teens and parents regarding rules: “There’s some resistance, but I know in the end [my son] appreciates me and loves me for it.”

We found that parents generally let teenagers keep the door to their bedroom closed, except when significant others were visiting. All parents felt entitled to enter their children’s rooms when their children were not there. As long as parents were not snooping, most teens agreed. Teens appeared to consider few physical areas private. Most parents had rules and restrictions about their children’s social lives. All teens were required to notify their parents of their physi-

cal location at all times. While these requirements did cause some parent-teen tension, both parents and teens generally agreed that such practices were reasonable.

4.3.1 Bedrooms

We found that parents generally treated teens’ bedrooms as somewhat private, giving the teens personal space, yet did not feel like they should be restricted from entering. While teens did not approve of the relatively rare practice of parents snooping around their room, they felt that the benefits of having their laundry or other tasks done for them were valid reasons for their parents to enter their room.

We found wide acceptance of the practice of teens keeping their bedroom doors closed for privacy. P2 said he permitted his children to keep their bedroom doors closed because “that’s their space.” A few parents gave their children privacy in their bedrooms, yet explicitly noted that they would still go in if they wanted to. As P3 explained, “Mom reserves the right to check on any of her children at any time.”

All parents and all but two teens indicated that parents knocked or otherwise notified their children before entering their room. Respect often drove this decision; P1 explained, “It’s his private [space], it’s his domain. Well, not domain, but just out of respect. I’d expect the same.” Generally, parents and teens used knocking or other advanced warning to avoid awkward situations. For instance, P5 explained, “Since the door is closed, there are potential things I could be walking in on that neither of us want to know about.”

All parents felt comfortable entering their children’s bedrooms when their children were not there, and all teens except T4 said their parents enter their room when they are not there. None seemed particularly troubled by this practice as long as their parents had a reason. For instance, T7 felt it was acceptable for his parents to come in “to get my laundry. That’s pretty much it. Or make my bed.”

A handful of parents interviewed did think it appropriate to snoop through children’s rooms. P1 noted that she enters her son’s bedroom multiple times a week “to snoop. It’s my house and I’m gonna go in that room whenever I want to.” Despite this snooping, she did not feel like she was violating her son’s privacy. She explained, “Hell, there could be a mad man living in the room, how would I know? I could see Dr. Phil, ‘Well, you never went in your son’s room, huh, would you now?’ Ya, I respect his privacy, yes I do.”

Although most parents and teens generally considered unprovoked snooping a privacy violation, only a few participants felt particular areas of the physical bedroom should be off limits to parents. Some parents who mentioned specific locations noted that these policies were hypothetical. For instance, P1 said “if [her son] had a diary, I wouldn’t look through that.” No participant other than P3’s daughter actually kept a diary.

Instead, both parents and teens most commonly mentioned cell phones and computers as off limits to parents. Seven parents each mentioned cell phones and computers. While nine teens mentioned cell phones, only five mentioned computers. Figure 3 enumerates the locations and devices participants suggested were off limits for a parent.

4.3.2 Privacy in teens’ social lives

All participants except two parents and three teens noted that the teenagers in their household had restrictions on their social lives, most commonly curfews or restrictions on

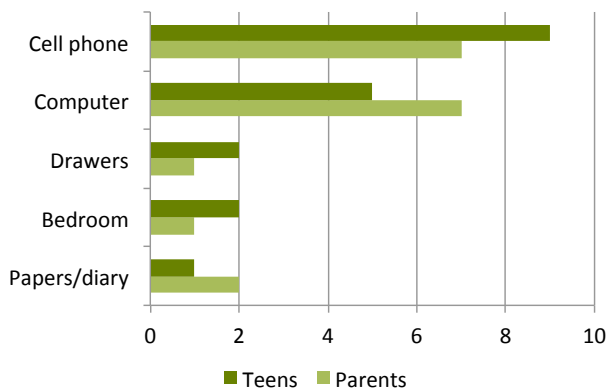


Figure 3: The number of parents and teens who said different areas were inappropriate for a parent to go.

overnight visits. Whereas T10 was representative in saying “[My mom would] never let me sleep over at a guy’s house, or let a guy sleep over at my house,” T4 was similarly representative of the flexibility most teens created for themselves, saying, “Oh yeah, [I violate my parents’ restrictions] a lot. I’m always late on curfew.”

All participants, even those without restrictions, noted that the teens in their household needed to notify their parents in advance about where they were going. There were some complaints about required notification, but they were limited. P1 discussed her son’s objections, saying, “He says I’m always calling him...And he wants his own personal space.” Surprisingly, all of the teens we interviewed felt the notification process was reasonable, though annoying.

We also investigated attitudes about teen dating and romance, particularly concerning privacy. While participants had a range of views on the appropriateness of teen dating, these discussions provided little insight into privacy decision making. Most commonly, parents wished to be oblivious to their children’s sex lives. As P4 said, “It makes me a little bit ‘ew’...I’m not sure that I want to know.” P1 explained, “I don’t even want to think about it...That’s disgusting.”

4.4 Teen Privacy in the Digital World

We investigated teens’ attitudes towards digital devices, including laptops and phones. Teens largely expressed that their digital spaces were personal and private. We also note the prevalence of teens using laptops solely for schoolwork, rather than recreational browsing, as well as the prevalence of teens using texting as a primary communication channel.

4.4.1 Devices

Teens felt strongly that phones were private devices that parents should not access. In contrast, laptops were less private and primarily for schoolwork. T9 said, “People don’t have the right to go through [my phone].” Similarly, T2 expressed annoyance at his parents “constantly searching my phone,” which he thought demonstrated a lack of trust. P9 was aware of the value her children placed in phones, stating, “no one should be in each other’s phone...invading other people’s rights.” Few teens used computers for socializing. T8 spoke for many of our participants when she said that phones were “more private” than computers.

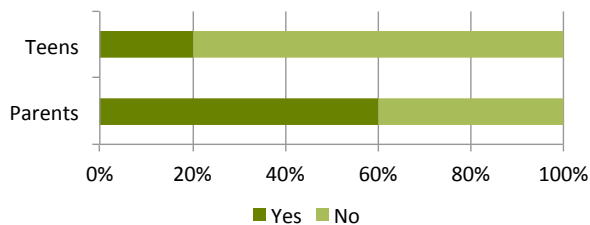


Figure 4: The percentage of parents and teens who felt it ethical for parents to look through teens’ text messages. Teens strongly opposed this practice.

Many participants relegated laptops and personal computers to schoolwork only. As T5 explained, “A lot of schools will provide you with a Chromebook or something of that sort.” This led some teens to distrust the school-provided laptops because, as T4 put it, “I think that they can go in and check [my activities].” As a result, many teens chose not to use their computers for anything other than schoolwork. T7 said, “I don’t really use my laptop that much, just for like schoolwork and stuff like that.” T8 concurred that her computer was used for “mostly school,” while T10 stated that “the computer just has school documents on it.”

Most parents also observed that computers were primarily for schoolwork. Of her son’s laptop, P2 explained, “He hardly ever uses it, except for schoolwork.” Monitoring and content-control software on school laptops seemed to be a significant reason for teens’ minimal use of laptops. As P5 describes: “my older one has a school provided laptop that is very locked down, and he really only uses it for school.”

4.4.2 Texting

Many teens used text messaging for private communication. Our teen participants repeatedly echoed this thought, with T2 saying, “[Parents] looking at my texts...feels like an invasion of privacy,” and T10 explaining, “Texts are more private because that’s where I talk to my friends.”

Some parents had also observed that teens relied on texting for private conversation. P9 observed that her children “use their phones for socializing and I don’t feel the need to get involved in that. And they don’t want me to.” However, many participants said that parents in their household had no qualms looking through text messages, such as when T2’s mother punished her son by looking through his texts. He explained, “I lost her trust and she decided to look through all my text messages on my phone.” In some households, parents monitored teens’ texts even more regularly. P10 and his wife routinely checked their children’s phones for “texting, anything they can access with that,” and he expressed that he would prefer to be “checking [texts] more consistently.” While many parents felt it acceptable to monitor texts, very few teens agreed, as illustrated in Figure 4.

4.4.3 Social Media

In general, teens’ reported interest in traditional social media seemed to be waning compared to past studies. We asked specifically about teens’ use of Facebook. Signing up for an account often came “with the provision that if you have a Facebook account, you friend your parents,” as explained by P8. Perhaps in reaction to this, teens had moved

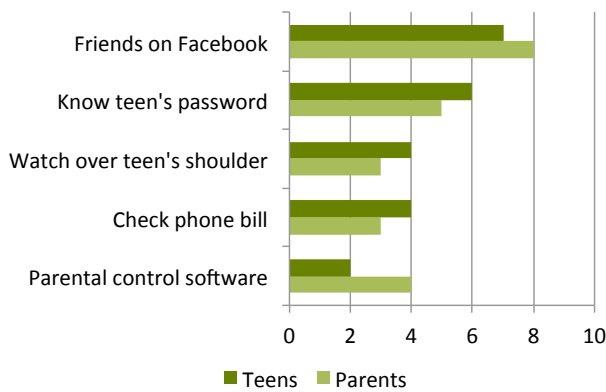


Figure 5: The number of parents and teens we interviewed who reported the adults in their household employing different types of technological monitoring.

away from Facebook for personal activity and correspondence. Besides running a few group pages and talking to family, T3 admits, “I don’t really do anything on Facebook besides just like, checking every once in awhile.” P6 observed, “I think that Facebook is kind of trending away with the younger generation, especially when his parents and all his parents’ friends are on there.”

While few teen participants said they regularly used Facebook, many of them did report using Instagram, Snapchat, Vine, and Twitter. However, teens’ shift from Facebook to these new services was not yet on most parents’ radars. None of our parent participants were familiar with Instagram or Vine, while only one (P6) had ever heard of Snapchat. P6 was not sure, however, whether his son used Snapchat.

4.5 Decision making

In this section, we first examine parents’ decisions about monitoring and restricting their teens’ use of technology as examples of privacy decision making. We then unpack parents’ decision making about their teens’ privacy. We discuss how parents rely on their own experiences as a teenager to make parenting decisions about technology, even though participants thought today’s world differs substantially from the world of 25 years ago. We also evaluate the extent to which participants conceived of privacy similarly online and in the physical world, which was a source of parents’ misunderstandings of how private teens consider their devices.

4.5.1 Decisions about monitoring

Parents utilized a variety of methods to monitor their teens’ online activities. As shown in Figure 5, parents commonly relied on being Facebook friends with their teens, knowing some of their passwords, or looking at their teens’ phone bills. Some parents placed computers in public areas of the house to watch over their shoulders, while others surreptitiously monitored teens’ activities. Four parents and two teens reported that parental controls had ever been used in their family, while four parents (P1, P6, P9, P10) simply required their children to show them their devices.

In a few households, computers were kept in a public area so that parents would know what their teens were doing.

When describing her 14-year-old daughter’s computer use, P3 stated, “Her computer’s kind of in a public room where mom can see.” T1 described how his parents would observe by listening, saying, “Sometimes they come and just stand there and they don’t say anything. Normally, they’re just listening to my Skype conversation.” A few parents also monitored surreptitiously. For instance, P7 said, “Sometimes it happens that I check [my kids’ browsing] history.”

Four parents and two teens mentioned parental control software. P8 used parental controls primarily to restrict certain content, but had dabbled in blocking social media: “Basically it was a filter for, just, stuff we thought might be offensive sites...earlier on we kinda limited some social networking, because we wanted to get a sense of who they were communicating with.” Notably, however, most of the families that had used parental controls had since abandoned them due to the frequent false positives. In other cases, the families had no idea whether the parental controls were still active. A few participants reported using parental controls on mobile or portable devices. T9 had struggled against restrictions on his iPod, recalling, “[My Mom] put a password on it to sort of change the restrictions [to prevent downloading explicit songs], so I tried to guess it; successfully, eventually, but by then it didn’t really matter.”

Parents often paid for teens’ cell phone plans, so some had access to records of whom the teen had called and texted through the monthly phone bill. Many parents took advantage of this and reviewed the logs (P5, P6, P7). As T3 reported, “They check which numbers I text.” For the most part, teens assumed that parents were primarily monitoring not who the teen contacted, but that teens were not staying up too late (T3 and T9). In T2’s case, his mother, who lived separately, looked at his phone bill to ensure that he was not ignoring her. He said, “[If] I haven’t talked to her in a couple of days...she checks the phone bill to see if I’ve been texting people and calling, to see if I’m ignoring her.”

Some parents looked through teens’ text messages. P5 did not do so, which she felt made her an outlier. She explained, “I have many many friends who have, say, teenagers or pre-teen kids who do think it’s absolutely acceptable to take their phone and look through their kids’ messages, or limit things, or just read over emails.” T4’s father would frequently look through her text messages. She developed a strategy to avoid her father’s prying, saying, “I leave [my phone] in my room and I’ll just tell my dad I forgot it.”

A common practice was for teens to be friends with their parents on social media, often as a condition of using the site. As T6 put it, “I’m friends with my parents on Facebook. That’s, like, a big thing.” P10 dryly remarked of his children, “Yes, [my wife’s] on Facebook, much to their chagrin.” However, not all teens friended their parents under duress. P6 described his son’s Tumblr use, saying, “My girlfriend is a follower of his on Tumblr. And he follows her. It’s very out in the open. We’re not sneaking up on him.”

Five parents and six teens reported parents having access to teens’ passwords. Motivations for this practice differed. Sometimes, passwords were necessary to maintain the computers. As P8 explained, “When I need to go in and manage their side specifically, I log on with their password.” Monitoring content was a prominent goal for other parents. P10 and his wife regularly checked his teens’ computers, using their passwords for “checking for online searches, checking email, Facebook, social networking, that sort of thing.”

Many parents reported having access to passwords, yet not using them. T10's family keeps a written list of passwords that all members of the household can access. Some parents helped teens set up computers or accounts and had their teens' passwords as a byproduct of that process. For instance, P5 said, "I did help them set up their Gmail accounts years and years ago. They probably haven't changed their passwords, so I probably still have them. But I haven't logged in in five years or whatever." P3 explained having her daughter's password was a safety measure, saying, "I just have the password. To me it's kind of a safety thing. I have jumper cables in my car...I hope not to have to use them tonight, but they're in there just in case."

Deleting information, such as browser history or text messages, was a common tactic among teens to avoid exposing private content to parents. Surprisingly, a number of parents expressed that they wanted their teens to delete things. For example, P4 lamented, "I'd think to myself, why didn't you delete it?" Teens expressed that they tried to be clever about covering their tracks. T4 explained, "I try to delete some of [my text messages] so it's not really obvious." Managing and routinely clearing questionable data took a toll on some participants. As T9 admitted, "I've watched pornography...At the time that I did, I was really a lot more paranoid about search history and stuff."

4.5.2 *Decisions about restrictions*

When parents attempted to regulate teens' technology use, they turned to non-technical methods. Parents sometimes took devices away, imposed time limits, or specified where devices could be used. As punishment, parents took away devices and shut off Internet access. When P9 wants to discipline her children, she "will take the phones away when I feel they're acting disrespectful." As T6 admits, "My dad turned the Wi-Fi off my house at one point." Parents usually imposed time limits verbally. T10 explained, "We'd play games and they'd say, 'Okay, only 15 minutes.'" Other families required devices to be used or not used in certain areas of the house. T6 explained, "They don't usually let us have laptops in our rooms."

4.5.3 *Parents' own teenage years*

In determining what policies to set for their teens' privacy, parents commonly used their own experiences as teenagers. For instance, P1 explained, "I try to think back when I was his age." She actively gave her son some private space, even though she decided that snooping in his room was not a violation of his privacy. On the other hand, P5 explained that she emphasized being open with her children, lamenting that her mother "never started the conversations."

Other parents mentioned their own transgressions as informing their parenting decisions. For instance, P6 said, "When I was fifteen, I totally would have broken all those restrictions." Similarly, two other parents mentioned their experiences as teenagers hiding marijuana from their own parents. Amusingly, P4 lamented her own children's inability to hide their tracks, saying, "These kids today. When I snuck out of the house at his age, I made sure that I came in and left and didn't get caught!"

4.5.4 *Differences today*

While parents' own experiences are crucial to their decision making, all participants noted many ways in which

being a teenager today is different than it was 25 years ago. In addition, except for P8, all parents said their view of teen privacy is different from how their parents viewed it when they were teenagers themselves. Technology played a major role in these changes, and the use of technology was starkly different. For instance, P6 mentioned that his son started using a computer at age 2. In contrast, he said, "When I was fifteen, we had an Apple IIe computer at home...I honestly couldn't do anything with it."

The most salient difference was a tension relating to teens' freedom. While modern teens have the freedom to access huge amounts of information, they lack the freedom to disappear from their parents (P1, P5, P7, P9). The expectation is that they are always connected. As P4 explained, "I have to know where he's at. If I call him he has to answer." Similarly, P5's kids had "just gotten smart phones and one of the agreements for that was that I need to be able to get in touch with them whenever I need to." Some teens were cognizant of the implications of cell phones. As T5 said, "There comes a lot with a cellphone, in the sense that you can be reached at any time. Or be bothered."

Parents contrasted modern expectations of constant availability with their own childhoods. P7 reminisced, saying, "My parents didn't know where I was for hours...I couldn't call." Similarly, P9 recalled, "I'd say I'm going to New York...[and] come back like eight hours later. Did they ask where I was, what I did? No! I was back."

For many parents, technology thus became a means of control (P4, P5, P6, P7, P9). P7 explained, "The reason why we both have the phones is because we parents want to actually control them. So, at least 50% of the reason was for us, not for them." P6 focused on the use of technology in schools to keep tabs on his son. He said, "Thank God for technology...I do look at his grades and his missing assignments...It's kind of like that whole panopticon thing."

Some parents felt technology has made teens' lives much more complex (P4, P9) and dangerous (P2, P7, P10). P10 said, "There weren't as many issues as there are today for teens for a privacy issue to arise...The biggest problems in schools were chewing gum, and these days it's weapons and drugs and rock & roll, alcohol." Teens tended to be somewhat dismissive of this viewpoint. T8 explained, "When my parents were my age, they tell me about how they walked everywhere and how they could keep their doors unlocked and we can't do that today." When asked why this was no longer the case, she snarkily replied, "Because I could get abducted or something, I don't know." T9 instead characterized the generation gap as one of access. He said teens now "do things much more efficiently, like setting up a party...It's kind of like what they had, but for us it's on steroids."

Some parents (P2, P5, P6, P7, P9) expressed shock at the extent of teens' lives that occurs online. As P6 explained, "[My son] spends a significant portion of his life online. He really does. And I think most kids do." He contrasted this state of affairs with his own childhood: "The things that were private when I was fifteen were my bedroom and what was going on in my life." Teens also recognized parents' confusion at the way teens communicate. For example, T8 said, "They think it's weird that I'm on the computer a lot, but it's just something that this generation does."

One parent noted that people her age are the first to have experienced stark generation gaps between parents and teens. P9 explained that, for her own parents, "the big

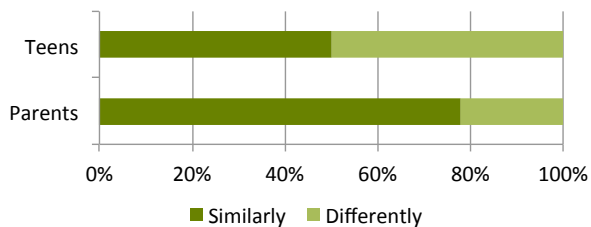


Figure 6: The percentage of parents and teens who said they think similarly or differently about privacy in the physical world and privacy online. We exclude one parent and two teens with whom we did not discuss this topic.

thing [for my parents]...was like smoking and drinking and playing cards...I think that their lives were so similar to their parents' lives, like there wasn't a big culture break...I was educated in a lot of the liberal views and sexual freedom...Honestly, I was a lot wilder than my kids ever will be." She drew another distinction with her children's generation. She said, "I worked from age 12 because life was boring...[Now] I feel like we can do so much with a phone: we can look up, we can research, we can read books, we can talk to people." As a result, she had to kick her "oldest son's butt to work and he's like 'Why? I have a phone. I have access to a car. I have friends. I get good grades. Why would I need to work?'"

4.5.5 Online vs. physical

A large part of the gap between parents' and teens' privacy decision making process appeared to be predicated on whether they thought similarly about privacy online and in the physical world. Excluding three participants who did not discuss this topic, 7 of 9 parents said they thought similarly about privacy online and in the physical world, whereas only 4 of 8 teens said the same (Figure 6). It is less surprising, then, that teens and parents differ in opinion about privacy for digital devices.

Many parents felt that the human characteristics underlying the physical world applied equally to the digital world. P3 explained, "I didn't have a cell phone. I didn't have Internet back then. It was kind of like a different world. But as far as respect goes, basic respect is always gonna be basic respect." Similarly, P6 offered, "Just because they're not sitting in front of you doesn't give you the right to talk in a way that you wouldn't talk to someone who was right there in front of you." Other parents had not given potential contrasts between the digital and physical worlds much thought. When asked detailed questions about parenting practices, P2 was surprised to conclude, "It seems that I do give them more space online than I do physical."

P6 drew a direct parallel between his son's privacy in the real world and online. Early in the interview, he mentioned his son had a small chest in his room. P6 said his son "had a lock on it for a little while, not actually locked, just kind of hanging on the thing. It was an interesting symbolic demonstration of 'this is off limits,' even though it clearly wasn't, because anybody could just take the lock off." P6 chose to treat the chest as his son's private space and not snoop. When later discussing how he knew his son's computer pass-

words, P6 explained, "I want the password in the same way that I [would] want a key to the lock on his footlocker...I'm not going to snoop around in his stuff...[But] if I had cause to think I needed to look at that stuff, I want to be able to do so at my convenience."

P7 also drew parallels between her son's behavior on the computer and her experiences as a teenager in the physical world. When her son deleted his computer's browsing history, P7 found it "really smart but also suspicious. I mean, you clean the history because you want to hide something. But then I had a second thought and I said, well, I tried to actually create a similar situation when I was a teenager. I remember that I wrote down notes, not really a diary, but some kind of personal notes. And I could have hated my parents after reading that stuff. So I try to respect this kind of private life for whatever it is."

Interestingly, the parents and teens who distinguished between privacy online and privacy in the physical world had diametrically opposed views about the relative danger of these contexts. Parents felt that the physical world was filled with friendly faces, yet online was filled with strangers. P5 explained, "My concern for privacy online is much more of protection from other people...Like if they close their bedroom door, the only risk to me looking inside is that I'm looking inside. Whereas if they have a Facebook account or whatever, and they don't close the door properly, then a billion people can look inside." P7 similarly asserted that online, "your stuff is available or reachable by a much bigger context. So if you publish something, it's not just your circle of friends or family, it can really go to the world. So the impact is ten times, one hundred times bigger."

In contrast to the parents, the teens we interviewed felt their online world comprised their friends, whereas the physical world was inhabited by strangers. As T8 explained, in the "physical world, the majority of the people I see are strangers, so I don't really worry about them thinking about what I'm doing. But online, like the people that follow me, I know them personally. So I think what I do will kind of affect them more in how they see me."

The teens we interviewed also had trouble understanding the online dangers their parents emphasized. In fact, the teens felt that there were fewer possible consequences online than in the physical world. T7 explained, "If someone finds out that you did something in life, you can get in trouble at school or get in trouble with your parents or something like that. But online, there's not that much stuff that you can get into trouble." With one exception—T5, who noted concerns about online hackers and cyberbullying—the teens felt that their school assemblies about online safety were excessively alarmist. T8 characterized the latest such assembly as "kind of boring, so I kinda like just zoned out." As a result, teens felt that parents misunderstood the decisions they were making about online safety.

The teens did note some exceptions to the general safety they perceived online. T6 noted that, in the absence of actively deleting information, "online stays there forever." Furthermore, teens made a specific exception for Facebook, which they felt was the one area where their online life intersected their life in the real world. T10 said, "It makes sense to me why [my mom would] want to monitor my Facebook because people talk about how when you're looking for a job they'll look on your Facebook."

4.5.6 *Misunderstanding teens' private spaces*

One major disadvantage parents had in their decision making process was an incomplete understanding of the technologies their children were using daily. Half the parents we interviewed said they struggled with technology (P2, P4, P5, P7, P9). P4 told us she “just realized that you’re able to go online” with gaming consoles. Describing Android unlock patterns P6 said, “I watch him do it sometimes and I still don’t understand.” P2, who works in the tech industry, explained that the mother of his children was reluctant to let the kids have email accounts because she is “more paranoid about things she doesn’t understand.” Yet he also struggled when trying to comprehend his son’s “36 virtual friends.”

Unsurprisingly, teens then felt their parents failed to understand modern communication. T6 lamented, “They think that you’re behind a screen, so you’re cutting yourself off from the world. But I don’t think that. I think you’re talking to people.” This tension clearly manifested itself regarding text messages. Whereas T5 happily noted texts as the default communication channel, P1 complained that texting “makes me mad. I want to hear [my son’s] voice.”

Beyond teens’ reliance on text messaging, the parents we interviewed struggled to understand the private nature of those conversations. For instance, even though T6 often deletes text messages, she said, “[My parents] want me to think before everything I write, even in a [text] message.” The impermanence that teens attributed to phone conversations carried over to apps. Even though she was aware of the ability to take screenshots, T6 considered Snapchat to be her most private method of communication. Only one parent (P6) had heard of Snapchat; none had ever used it.

Whereas teens relied on the ability to delete messages on the phone, parents felt that digital communications were uncontrollable once sent. P10 said text messages “can be forwarded. They can be copied. Other people can find out about them.” He felt that the only type of private communication between friends was “a written note [or] getting alone with them [in a] room...the old fashioned ways.” Similarly, P3 believed teens communicate privately via notes, as was the case during her childhood. She said, “Teenage girls, I was one of ’em once, pass notes to her friends in her school.” As a result, she did not consider her daughter’s phone to be private and had configured her daughter’s phone to communicate only with whitelisted numbers.

Some of parents’ unfamiliarity benefited teens. T8 explained, “My dad, he’s bad with technology. But my mom could adapt if she wanted to. I don’t think she really cares to...She mostly just pays attention to Facebook,” which was convenient for teens since none of our teen participants considered Facebook to be particularly private. In contrast, T8 thought it “would be weird” if her mom wanted to follow her on Twitter. Similarly, T10 happily mentioned, “I don’t even know if my mom knows what Snapchat or Instagram is.”

A major difference we observed between parent and teen participants was their understanding of what types of private spaces were most essential. Most parents thought allowing their teenagers to be alone in their bedrooms with the door closed was sufficient private space. Putting herself in her son’s shoes, P1 said, “This [bed]room is my world. I can listen to my music, go on the computer, do what I want.” P5 noted that “everybody needs a space that they can go to that they can just be private...Since the house is mine, the bedroom is really the only space [teenagers] have.” By a

similar thought process, P6 noted carefully avoiding looking “under the mattress” when he needed to search for bedbugs in his son’s room because “when I was a child, that was a place where you hid things away from your parents.”

However, teens generally did not hide things under their bed; they hid them in their phone. Many of the parents we interviewed did not grasp the importance of cell phone privacy for teens. Even P6, who generally felt “it’s not ethical to go through anybody’s text messages [because]...it’s the equivalent of digging through somebody’s drawers,” struggled with teens’ phone privacy. He later noted, “if the day comes that I really want to look at his phone, I could.”

4.5.7 *Parents' struggles evaluating privacy*

In the end, all but one parent said they struggled making privacy decisions for unfamiliar technologies. When asked how he decides what rules to adopt for new technologies his son is using, P6 said, “I kind of make it up as I go along.” He further explained that his son “has access via the Internet to things, materials—explicit materials in particular—that when I was fifteen, you just didn’t have access to...And that does pose a problem in terms of what does that really mean? But that’s an answer that I don’t have.”

The lack of context caused particular difficulty. P8 simply noted that “the playing field is different.” This different playing field left parents unable to evaluate risk; P7 complained, “How can you compare? Like my kids can actually be in the dining room and chatting with somebody in China...The reality is they could actually be in more danger.”

The rapid pace of change was an additional confound. P10 explained, “You’re comfortable with what you’re familiar with. And today things are changing so much that it’s hard to get familiar and comfortable with something because there’s a new advancement something’s new and improved, or there’s a whole new way of communicating.” Similarly, P4 lamented, “It’s overwhelming for me...It’s so different from when I grew up...I don’t know if I’m too strict or too loose.”

5. DISCUSSION

Our interviews with ten teens and ten parents delved into how parents understood and navigated teens’ privacy in an unfamiliar world, as well as how teens perceived their parents’ decision making. Our findings unveiled a notable disparity between teens’ and parents’ views of technology, cutting across family dynamics and socioeconomic classes.

In some areas, we found accord between parents and teens. Both groups generally acknowledged that teens had some right to privacy from their parents and that this right was limited. However, as we look toward real-world examples of privacy rights, parents and teens begin to diverge. Many teens felt that their smartphones, containing text messages and apps, were their most personal form of communication. Even when the parents we interviewed expressed a desire to give their teens personal space to socialize with their friends, they anticipated the teens would have an in-person conversation, not use text messaging. As a result, these parents often adopted policies regarding use of technology that clashed with their abstract goals of giving teens private space.

Despite their conflicting perceptions of technology use, both parents and teens were operating in good faith. Communication problems were the heart of the issue. Parents struggled with how to make decisions about technology use—they weren’t intimately familiar with many of the technolo-

gies and made incorrect assumptions. Meanwhile, teens were more familiar with the technologies, but were not always able to make responsible and mature choices. In one example, parents frequently required that their teens friend their parents on Facebook as a condition of signing up for the site. While parents felt this was a good way to keep tabs on their children’s digital activities, it seems to have caused the teens we interviewed to stop using Facebook regularly. Instead, teens overwhelmingly preferred texting, Instagram, or newer apps for socializing with friends.

The communication gap arising from generational differences and differing perspectives on the role of digital devices and the Internet is a substantial obstacle to parents’ decision making. We intend this paper to inform the conversation about how to help parents make privacy decisions for their teens in this technology-filled world that differs starkly from their own childhood. While we did not test specific approaches, our results provide insight into the needs of parents and teens that can help guide developers.

Even though many of the parents we interviewed described struggling with making decisions about privacy for their teens, few of them regularly used parental controls or other digital parenting software. Even the families that had used these tools in the past reported that the trouble of using them often outweighed the benefits. One reason for this non-adoption might be that the tools do not support parents’ goals sufficiently. Existing digital parenting software most commonly blocks access to resources deemed inappropriate according to some heuristic. Frequent false positives in this blocking cause frustration and lead parents to disable these parental controls [27]. Other tools are designed to notify parents about their children’s activities, such as their location. However, parents sometimes find this approach stifles their children’s independence and maturation process, again leading to non-adoption [28].

Our results suggest that there is ample opportunity for tools that inhabit a middle ground between doing nothing and forcibly preventing or conspicuously reporting teens’ actions to their parents. Parents who are concerned that they are not doing enough to teach their children to make responsible, privacy-protective decisions when using technology might find value in software tools that encourage, rather than force, certain types of behaviors. This approach of encouraging, or “nudging,” users to give more careful consideration to a decision has been applied successfully to a number of domains [26].

Among digital parenting software tools, this approach to software might use heuristics to detect actions that a parent might not approve of and take the opportunity to remind the teenager of the parent’s expectations and the teen’s responsibilities, yet not block the action. For example, in a field trial of privacy nudges for Facebook, Wang et al. found that visual reminders of a family member being able to view content was effective in encouraging privacy-protective behaviors [29]. The nudging approach to digital parenting software might alleviate parent-teen tensions because teens would still be free to make their own decisions, albeit with guidance and reminders.

Our results can also inform efforts to improve user education around these new technologies. In particular, we observed a major gap in parents’ understanding of how their children use new types of devices, apps, and services to communicate with their friends. Unfortunately, much of the dis-

course in the popular media about these new technologies focuses on worst-case scenarios. Instead, parents might benefit from a better understanding of how the majority of teens actually use apps like Snapchat [19], beyond the fact that a fraction of teenagers use it to send explicit photos. Similarly, the increased understanding of parents’ and teens’ perspectives that we provide can be used to improve laws like the Children’s Online Privacy Protection Act of 1998 (COPPA). While other scholars have noted flaws in the implementation of COPPA [3, 13], our additional perspective can help suggest potential next steps in improving privacy laws.

6. ACKNOWLEDGMENTS

This work was supported in part by NSF grant CNS-1012763 and by a National Defense Science and Engineering Graduate (NDSEG) Fellowship awarded by the DoD and Air Force Office of Scientific Research (32 CFR 168a). The authors would like to thank Richard Shay for his assistance.

7. REFERENCES

- [1] K. A. Bamberger and D. K. Mulligan. Privacy on the books and on the ground. *Stanford Law Review*, 63, January 2011.
- [2] d. boyd. *It’s Complicated: the social lives of networked teens*. Yale University Press, 2014.
- [3] d. boyd, E. Hargittai, J. Schultz, and J. Palfrey. Why parents help their children lie to Facebook about age: Unintended consequences of the ‘Children’s Online Privacy Protection Act’. *First Monday*, 16(11), November 2011.
- [4] J. Cheng. What inner city kids know about social media, and why we should listen. Medium, September 25, 2013. <https://medium.com/i-m-h-o/53ea514c9ec0>.
- [5] J. T. Child and D. A. Westermann. Let’s be Facebook friends: Exploring parental Facebook friend requests from a communication privacy management (CPM) perspective. *Journal of Family Communication*, 13:46–59, 2013.
- [6] A. Czeskis, I. Dermendjieva, H. Yapit, A. Borning, B. Friedman, B. Gill, and T. Kohno. Parenting from the pocket: Value tensions and technical directions for secure and private parent-teen mobile safety. In *Proc. SOUPS*, 2010.
- [7] A. Forte, M. Dickard, R. Magee, and D. E. Agosto. What do teens ask their online social networks? Social search practices among high school students. In *Proc. CSCW*, 2014.
- [8] S. Hawk, L. Keijsers, W. Hale, and W. Meeus. Mind your own business! Longitudinal relations between perceived privacy invasion and adolescent-parent conflict. *Journal of Family Psychology*, 23(4):511–520, 2009.
- [9] A. Hess. Millennials aren’t oversharing on social media. (So what are they hiding?). Slate, October 18, 2013. http://www.slate.com/blogs/xx_factor/2013/10/18/millennials_on_social_media_young_people_are_incredibly_savvy_about_internet.html.
- [10] S. Livingstone and M. Bober. Regulating the Internet at home: Contrasting the perspectives of children and

- parents. In *Digital Generations: Children, young people and new media*, pages 93–113. 2006.
- [11] M. Madden, A. Lenhart, S. Cortesi, U. Gasser, M. Duggan, A. Smith, and M. Beaton. Teens, social media, and privacy. Pew Internet Report, May 2013. <http://www.pewinternet.org/Reports/2013/Teens-Social-Media-And-Privacy.aspx>.
- [12] A. E. Marwick, D. M. Diaz, and J. Palfrey. Youth, privacy, and reputation. Harvard Public Law Working Paper No. 10–29, 2010.
- [13] L. A. Matecki. Update: COPPA is ineffective legislation! Next steps for protecting youth privacy rights in the social networking era. *Northwestern Journal of Law & Social Policy*, 5(2):7:1–7:35, 2010.
- [14] A. Metzger, C. Ice, and L. Cottrell. But I trust my teen: Parents’ attitudes and response to a parental monitoring intervention. *AIDS Research and Treatment*, 2012.
- [15] M. K. Nelson. *Parenting Out of Control: Anxious Parents in Uncertain Times*. NYU Press, 2012.
- [16] H. Nissenbaum. Privacy as contextual integrity. *Washington Law Review*, 79(1), 2004.
- [17] S. Petronio. Privacy binds in family interactions: The case of parental privacy invasion. In *The Dark Side of Interpersonal Communication*, pages 241–258. 1994.
- [18] J. A. Rode. Digital parenting: designing children’s safety. In *Proc. BCS-HCI*, 2009.
- [19] F. Roesner, B. T. Gill, and T. Kohno. Sex, lies, or kittens? Investigating the use of Snapchat’s self-destructing messages. In *Proc. FC*, 2014.
- [20] J. Smetana. “It’s 10 O’Clock: Do you know where your children are?” Recent advances in understanding parental monitoring and adolescents’ information management. *Child Development Perspectives*, 2(1):19–25, 2008.
- [21] J. Smetana, H. F. Crean, and N. Campione-Barr. Adolescents’ and parents’ changing conceptions of parental authority. *New Directions for Child and Adolescent Development*, 108, 2005.
- [22] D. J. Solove. Conceptualizing privacy. *California Law Review*, 90, 2002.
- [23] D. J. Solove. “I’ve got nothing to hide” and other misunderstandings of privacy. *San Diego Law Review*, 44:745–772, 2007.
- [24] D. J. Solove and P. M. Schwartz. *Privacy Law Fundamentals*. IAPP, 2013.
- [25] B. Teitell. In digital world, kids gain the upper hand. Boston Globe, September 5, 2013. <http://www.bostonglobe.com/lifestyle/style/2013/09/05/age-ubiquitous-screens-some-exhausted-parents-have-stopped-policing>.
- [26] R. H. Thaler and C. R. Sunstein. *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Penguin, 2009.
- [27] B. Ur, J. Jung, and S. Schechter. Intruders versus intrusiveness: Teens’ and parents’ perspectives on home-entryway surveillance. In *Proc. UbiComp*, 2014.
- [28] A. Vasalou, A.-M. Oostveen, and A. N. Joinson. A case study of non-adoption: the values of location tracking in the family. In *Proc. CSCW*, 2012.
- [29] Y. Wang, P. G. Leon, A. Acquisti, L. F. Cranor, A. Forget, and N. Sadeh. A field trial of privacy nudges for facebook. In *Proc. CHI*, 2014.
- [30] S. D. Warren and L. Brandeis. The right to privacy. *Harvard Law Review*, IV, December 1890.
- [31] P. J. Wisniewski, H. Xu, M. B. Rosson, and J. M. Carroll. Adolescent online safety: The moral of the story. In *Proc. CSCW*, 2014.
- [32] S. Yardi and A. Bruckman. Social and technical challenges in parenting teens’ social media use. In *Proc. CHI*, 2011.

APPENDIX

A. TEEN INTERVIEW SCRIPT

Good {morning/afternoon}. My name is ____ and my colleague's name is _____. We will be moderating your interview today. Can we get you a glass of water or anything else to drink?

To begin, we would like you and your parent to review this consent form. It contains important information about today's interview. If you and your parent consent to the terms and would like to participate in the study, please sign the form and hand it back to us. [Present consent form]

At this point, we would like to ask your parent to leave. [Addressing parent] Our interview will take approximately one hour. You are welcome to wait outside or return once we are done. [Wait for parent to leave before continuing].

In this research study, we are interviewing a series of teenagers and a separate series of parents of teenagers to understand whether teens have a right to privacy, as well as what that means. We are also trying to understand how parents and teenagers make decisions about using new devices, apps, and websites. As part of this study, we will be asking you questions that relate to your relationship with members of your family. You are free to choose not to answer any questions, or to stop the interview at any point if you feel uncomfortable. We greatly value your honest and candid responses.

We would like to make an audio recording of this session. The members of your family will not listen to this interview recording, and we will not discuss with them what you say during the interview. This recording will only be used for the purposes of this study and will only be accessible to the researchers. Do you consent to having this session audio recorded?

Demographics

1. How old are you?
2. How many people other than you live in your house? What is each person's relationship to you?
3. What grade are you in school?

Online privacy

1. Do you have a computer? Where are the computers located in your house?
 - (a) Where are you allowed to use your computer?
 - (b) At what age were you first allowed to use a computer?
 - (c) Do your parents have the password to your computer?
 - (d) Do your parents use the password to check your computer?
 - (e) Do your parents monitor your computer use in any other way?
2. Do you have a phone?
 - (a) Is it a smartphone?
 - (b) Where are you allowed to use your phone?
 - (c) At what age were you first allowed to use a phone?
 - (d) Do your parents have the password to your phone?
 - (e) Do your parents use the password to check your phone?
 - (f) Do your parents monitor your phone use in any other way?
3. Do you have a tablet?
 - (a) Where are you allowed to use a tablet?
 - (b) At what age were you first allowed to use a tablet?
 - (c) Do your parents have the password to your tablet?
 - (d) Do your parents use the password to check your tablet?
 - (e) Do your parents monitor your tablet use in any other way?
4. Do you have a gaming device, like an Xbox or Playstation?
 - (a) Where are you allowed to use a game console?
 - (b) At what age were you first allowed to use a game console?
 - (c) Do your parents monitor your game console use?
5. Do you have an email address? At what age did you sign up for it? Do your parents have the password to this email account? Do your parents monitor your email account in any other way?
6. Do you have a Facebook, Instagram, Twitter, or other social media account? At what age did you sign up for it? Do your parents have the password to this account? Do your parents monitor this account any other way?
7. Do you feel your parents' restrictions are adequate, too much, or too little? Do you feel your parents respect your privacy online? Have you ever tried to get around their restrictions? What changes, if any, would you make to your parents' rules?

Space and New Technologies

1. What do you consider to be **your** space online, where you feel comfortable? What parts, if any, would you be comfortable with your parents seeing? Ideally, what would be your space online?
2. What devices do you own that you would consider your space?
3. What does it mean for something to be your space?
4. Do you look at things online that you wouldn't want your parents to know about? Do you think that your parents might know anyway?
5. How do you hear about new websites and apps?
6. How do you decide whether to join or use these new sites and apps?
7. Do you consider privacy when joining or using them? If so, how do you evaluate the privacy risks?
8. Do you think about your privacy online in the same way as privacy in the physical world, or differently?
9. Do you think your parents understand your privacy needs? Do you think your parents understand what it's like to grow up today, and how it differs from when they grew up?

Privacy at home

1. At home, do you have your own bedroom? If not, with whom do you share your room?
2. Are you allowed to keep the door to your room closed? Why or why not?
3. Do your parents knock before entering your room? Why or why not? At what age did they start knocking?
4. Under what circumstances do you consider it appropriate for your parents to enter your room when you are not there? When is it not appropriate? Are there places within your room that are not appropriate for them to go?
5. Do the bedroom doors in your house have locks? Do you use these locks? If so, when do you use it? Why? Is it appropriate for your parents to unlock your door?
6. Do you feel that your parents give you enough personal time and space at home? As far as you know, do they think they give you enough time and space?

Social privacy

1. What proportion of your friends do your parents know? Do you think you should have to tell your parents about all of your friends?
2. Do your parents impose any restrictions on you going out with friends, such as based on time, people, or location? Do they require you to notify them about where you are going, and with whom? Have you ever broken these restrictions?
3. Are there any rules in your family about dating? In general, are your parents aware of your romantic or sexual experiences?
4. Do your parents give you too little, too much, or just the right amount of space for your social life? How do you feel about these restrictions?

Other

1. Are you aware of any laws relating to children and privacy? What laws do you think there should be?
2. (Optional) Should existing privacy laws be removed or changed?
3. What kinds of information about you, if any, would you not want your parents to share with others? (e.g. family)
4. In general, is it ethical for a parent to look through their teenagers' text messages, Facebook, or email? Are there any circumstances under which your answer would change?
 - Do teenagers have the right not to reveal information to a parent?
 - Do teenagers have the right not to tell their parents about their grades in school?
 - Do teenagers have the right not to tell their parents about health information?
 - In general, do you think that teenagers have a right to privacy from their parents?
 - Do you feel that your parents respect your privacy at home?
 - Are there any other privacy rights which a teenager should or should not have from parents that we have not discussed today?
5. Do you think your siblings' answers to the questions today would have been similar to or different from yours?
6. Do you think your parents would be surprised to hear any of your responses today?
7. Do you have any other comments or questions about any topics we covered today?

Thank you very much for your participation! Your feedback has been valuable to our research.

We will eventually write a research paper about the conversations we have had with you and other research participants. In the paper, we would like to include quotations from some of our participants with attribution in the form of "Participant #." Do you give us permission to use excerpts from this interview in this research paper? Is there anything that we discussed today which you would like us not to quote? Thanks again! [Compensate participant]

B. PARENT INTERVIEW SCRIPT

Good {morning/afternoon}. My name is ____ and my colleague's name is _____. We will be moderating your interview today. Can we get you a glass of water or anything else to drink?

To begin, we would like you to review this consent form. It contains important information about today's interview. If you consent to the terms and would like to participate in the study, please sign the form and hand it back to us. [Present consent form]

In this research study, we are interviewing a series of teenagers and a separate series of parents of teenagers to investigate whether teens have a right to privacy, as well as what that means. We are also trying to understand how parents and teenagers make decisions about using new devices, apps, and websites. As part of this study, we will be asking you questions that relate to your relationship with members of your family. You are free to choose not to answer any questions, or to stop the interview at any point if you feel uncomfortable. We greatly value your honest and candid responses.

We would like to make an audio recording of this session. Please note that the members of your family will not listen to this interview recording, and we will not discuss with them what you say during the interview. This recording will only be used for the purposes of this study and will only be accessible to the researchers and transcribers. Do you consent to having this session audio recorded?

Demographics

1. How many people other than you live in your house? What is each person's relationship to you? Do you have any children who don't live with you?
2. How old are your children, and what grades are they in?

Online privacy

1. Where are the computers located in your house? Does your child have his/her own computer?
 - (a) Where is your child allowed to use a computer?
 - (b) At what age was your child first allowed to use a computer?
 - (c) Do you have the password to your child's computer?
 - (d) Do you use the password to check your child's computer?
 - (e) Do you monitor your child's computer use in any other way?
2. Does your child have a phone?
 - (a) Is it a smartphone?
 - (b) Where is your child allowed to use his/her phone?
 - (c) At what age was your child first allowed to have his/her own phone?
 - (d) Do you have the password to your child's phone?
 - (e) Do you use the password to check your child's phone?
 - (f) Do you monitor your child's phone use in any other way?
3. Does your child have a tablet, like an iPad?
 - (a) Where is your child allowed to use a tablet?
 - (b) At what age was your child first allowed to use a tablet?
 - (c) Do you have the password to your child's tablet?
 - (d) Do you use the password to check your child's tablet?
 - (e) Do you monitor your child's tablet use in any other way?
4. Does your child have a gaming device, like an Xbox or Playstation?
 - (a) Where is your child allowed to use a gaming device?
 - (b) At what age was your child first allowed to use a gaming device?
 - (c) Do you monitor your child's gaming use? How?
5. Does your child have an email address? At what age did they sign up for it? Do you have the password to this email account? Do you monitor this email account any other way?
6. Does your child have a Facebook or other social media account? At what age did they sign up for it? Do you have the password to the account? Do you monitor this account any other way? (Are you friends with them?)
7. Do you feel your restrictions are adequate, too much, or too little? Do you feel your child has the right amount of personal space online? Do you suspect your child has ever tried to hide their online activity from you? What changes, if any, would you consider making to your rules?

New technologies

1. How do you hear about new devices, websites, and apps that teenagers are using these days? What about technologies your children use themselves?
2. How do you decide what rules, policies, and strategies to adopt regarding your teen's use of these devices, websites, and apps?
3. Do you have any concerns about your teen's privacy with new devices, websites, and apps?
4. How do you evaluate the privacy risks of new devices, websites, and apps?
5. Do you think about your teen's privacy online in the same way as privacy in the physical world, or differently?

Privacy at home

1. At home, does your child have their own bedroom? If not, with whom do they share the room?
2. Is your child allowed to keep the door to their room closed? Why or why not?
3. Do you knock before entering your child's room? Why or why not? At what age did you start knocking?
4. Under what circumstances do you consider it appropriate to enter your child's bedroom when they are not there? When is it not appropriate? Are there places within their room that are not appropriate for you to go?
5. Do the bedroom doors in your house have locks? Does your child use the locks? When is it appropriate for them to do so? When is it not appropriate?
6. Do you feel that you give your child enough personal time and space at home? As far as you know, does your child think you give them enough time and space?

Social Privacy

1. What proportion of your child's friends do you feel you know? Would you be surprised if your child has friends you are not aware of?
2. Do you impose any restrictions on your child going out with friends, such as based on time, people, or location? Do you require your child to notify you about where he/she is going, and with whom? Do you suspect your child has ever broken these restrictions?
3. Are there any rules in your family about dating? Do you feel you are aware of your child's romantic or sexual experiences?
4. In general, how well does your child keep you informed about his/her life? Are there things you wish he/she would tell you more about?
5. Do you feel your restrictions are adequate? Do you feel you give your child enough, too much, or just the right amount of space for their own social lives? How do you think your child feels about these restrictions?

Other

1. Is there anything your child wouldn't want you to share with others? What kinds of information about your child, if any, would you not share with immediate family members? Extended family members? Friends?
2. In general, is it ethical for a parent to look through their teenagers' text messages? What about their Facebook? Email? Are there any circumstances under which your answer would change?
 - Do teenagers have the right not to reveal information to a parent?
 - Do teenagers have the right not to tell their parents about their grades in school?
 - Do teenagers have the right not to tell their parents about health information?
 - In general, do you think that teenagers have a right to privacy from their parents?
 - Do you feel that you respect your child's privacy at home?
 - Are there any other privacy rights which a teenager should or should not have from parents that we have not discussed today?
 - When you were your son's/daughter's age, did you feel that your parents respected your privacy? Why or why not?
 - Do you feel your view of teen privacy is different from how your parents viewed it when you were a teenager?
3. Do you have any other comments or questions about any topics we covered today?

Thank you very much for your participation! Your feedback has been valuable to our research. [Compensate participant]